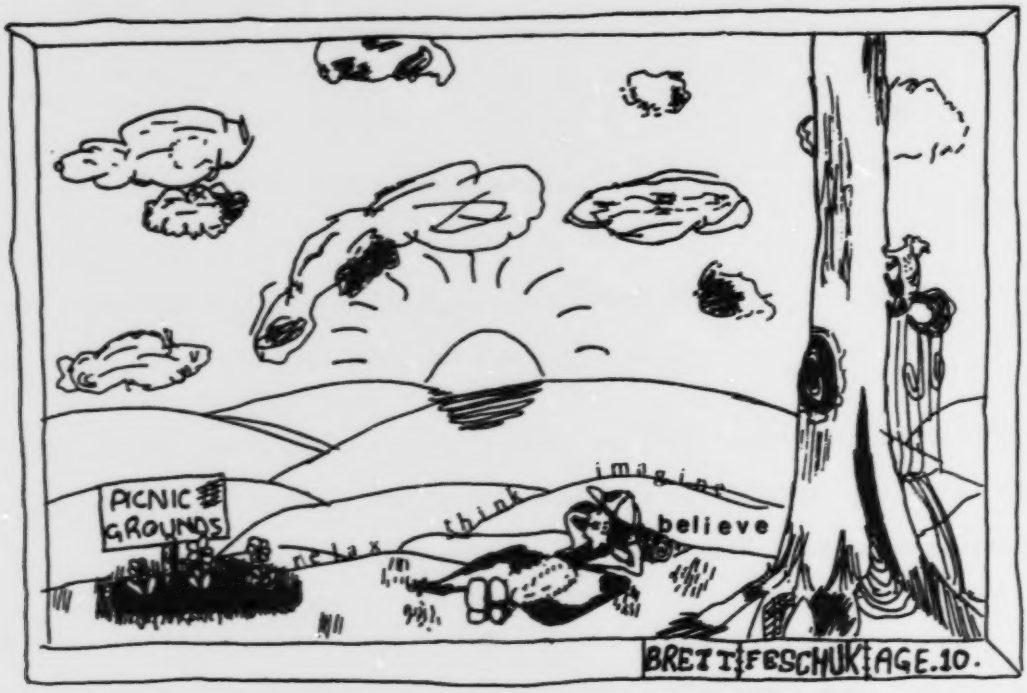


EDUCATING the GIFTED

MELVIN T. SILLITO
WARREN D. WILDE

THIS REPORT SUPERVISED BY
MEDICINE HAT PUBLIC SCHOOL DISTRICT #76
UNDER CONTRACT TO
ALBERTA EDUCATION, EDMONTON, ALBERTA

FEBRUARY 1983

83-1

ABSTRACT

The study, Educating the Gifted, was conducted by M. Sillito and W. Wilde between August 1981 and February 1983.

Using questionnaires, interviews and on-site visits, the researchers compiled non-statistical and descriptive data on current programs for the gifted throughout Canada and the United States. They also reviewed the literature in depth.

Their report describes numerous aspects of giftedness and educational programs for the gifted. The report contains sections on: the nature of giftedness, historical antecedents and the current setting, the role of visual and performing arts in educating the gifted, identification of the gifted, curriculum models, curriculum development and delivery, teachers and support services, administration and finance and evaluation of students and programs.

The researchers provide appropriate program generalizations and recommendations for procedures to initiate programs for the gifted. They note that there are two major obstacles to the establishment of special educational programs for the gifted:

1. current fiscal restraint of government, and
2. lack of knowledge in many areas including identification and evaluation procedures.

Drs. Sillito and Wilde agree, however, with the many other researchers who state that the needs of gifted students are badly neglected, and that special programs for the gifted are desirable and productive both for the gifted themselves and for society as a whole.

FOREWORD

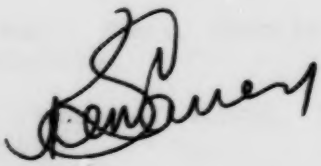
Who are the gifted? As educators, wherever we gather, we are faced with the term. Each person has a different definition or interpretation of what the term means. Some would tell us that special attention given to the gifted and talented might lead to a form of "elitism". Others counter that special attention is required because from this group will come the leaders of tomorrow.

Not much research has been done on the issue, although this is not to say that people have neglected the task of writing opinions on various aspects. More research and/or collating the ideas of writers and practitioners appeared to be the best way to establish firm guidelines for programs.

That is why, several years ago, Medicine Hat School District No. 76 established a committee to investigate the research done thus far, to visit selected programs in operation, and to make recommendations. Fortunately, Alberta Education Planning and Research agreed to fund a research project, using the services of Dr. Warren Wilde and Dr. Mel Sillito, which in turn, tied in with the district's work and resulted in this report.

The report will not answer all of your questions on this most important topic. It can, however, heighten the awareness of what is involved when you talk about gifted and talented students, and how important it is not to neglect this segment of the student population. The models, strategies and practices suggested can be useful steps in developing programs.

The Report on Gifted Education is an important and timely account of where we are and where we might go. I know you'll find it stimulating!



Ken Sauer,
Superintendent of Schools.

ACKNOWLEDGEMENTS

The authors are indebted to the many people who willingly shared their time and expertise in the data collection phase. One of the pleasant surprises throughout our survey and personal interviews was the amiability, enthusiasm and desire to share of those connected with programs for the gifted. Without the cooperation received, especially from those who set up schedules, chauffeured us to schools and gave generously of their materials, this phase of the work would have been an arduous chore rather than the pleasure it became.

We are deeply grateful to the steering committee for their patience, insight and consistently helpful suggestions. We owe a special thanks to Fred Kramer, Assistant Superintendent of Medicine Hat Public School District #76 and chairman of the committee, who set up meetings, met our airplane on numerous occasions, listened to our concerns and became an unfailingly helpful friend.

The committee consisted of:

Mr. Fred Kramer, Chairman, Assistant Superintendent, Medicine Hat Public School District #76,

Dr. Harry Sherk, Associate Director, Planning and Research, Alberta Education,

Mrs. Jacqueline Bishop, Teacher, Medicine Hat Public School District #76,

Mrs. Madeline Fischer, Teacher, Medicine Hat Public School District #76,

Mr. Bill Turko, Supervisor of Curriculum, Medicine Hat Public School District #76,

Dr. Garnet Millar, Consultant, Alberta Education, Lethbridge Regional Office.

We wish to express our appreciation to the support personnel and secretaries who worked diligently in the preparation of the report and patiently bore our requests for longer hours of service. They learned our quirks and deficiencies but nonetheless persevered to the completion of the task.

We are indebted to Jolayne, Judi, Ruth and Garnet for support papers and to Anita for the editing.

Finally, our thanks to the Planning and Research Branch, Alberta Education, and Medicine Hat Public School District #76 for the funding and supervision of this project.

M.T.S.

W.D.W.

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CHAPTER I

ORIGIN OF THE STUDY

The Medicine Hat Public School District became interested in the challenge of educating the gifted in 1978 when four children entering grade one could already read well and exhibited other signs of being academically proficient beyond the norm. The staff at the school where these children attended, after considering several solutions, recommended that a committee of interested teachers investigate possible programs to accommodate gifted children. Included as a member of this committee was the assistant superintendent who had previously attended a conference on the topic of gifted children. After a review of the literature, visits to some program sites and a conference in Vancouver, the committee did some testing to screen gifted children. Finally in the 1980-81 school year, a report was submitted along with recommendations. This project received a positive evaluation from the board but there was some doubt as to what should be done next.

It was proposed that a further study be undertaken to determine the current status of programs in United States and Canada, with special emphasis on the Alberta scene. The funding for this project was granted through the Planning and Research Branch of Alberta Education. The contract was assigned to Dr. Melvin Sillito and Dr. Warren Wilde who had previously shown interest in education of the gifted and had also proposed that such a study be launched. A steering committee was

established consisting of the assistant superintendent as chairman, two teachers, one central office supervisor from Medicine Hat School District, and an associate director of the Planning and Research Branch, with a member of the Lethbridge Regional Office of Alberta Education being added later. The steering committee decided on terms of reference for the study, received progress reports, provided valuable feedback to the research team and helped guide the study to completion.

Terms of Reference

The study was to include the following:

1. A review of the literature to determine whether or not it is beneficial for students to be involved in gifted education programs and whether such programs have made a significant difference to student success.

2. Information about processes of screening and identifying of candidates that would lead to efficient and accurate selection.

3. Information on appropriate curriculum materials that could be used as models by Medicine Hat School District No. 76.

4. An analysis and critique of various administrative groupings or delivery systems which are in operation.

5. Information about various program evaluation designs and a recommendation of one that could be developed by Medicine Hat School District No. 76 to be compatible with a chosen curriculum and delivery system.

6. Information on possible funding arrangements and administrative structures.

7. Other pertinent information about gifted programs not available in the previous report developed by Medicine Hat School District No. 76.

Objectives

In the beginning, the objectives of the study were mainly threefold, but a fourth objective was added later:

1. To provide a document to serve as a reference for Medicine Hat School District No. 76, Alberta Education and other interested groups.

2. To provide an in-depth description of some selected programs and an evaluation of their success.

3. To analyze existing programs to distill the commonalities as well as some pertinent exceptional features.

4. To provide appropriate program generalizations and recommendations for procedures to initiate programs for the gifted.

As the project progressed it became apparent that more sites should be visited than had been intended originally. Also, of even greater significance in terms of time and effort was the steering committee's request for "appropriate program generalizations and recommendations for procedures to initiate programs for the gifted." The latter point became

a major objective to be accomplished through a thorough analysis of the literature supporting education for the gifted, observable data from visits, analysis of information received from requests and a subsequent synthesis of the data which seemed most relevant.

Procedures

The project was begun by attending the World Conference for the Gifted in Montreal, Quebec in August 1981. At this conference several contacts were established with those involved in gifted education across Canada and the United States. One major resource person was Linda Lewis from Coquitlam, B.C. who had been instrumental in the establishment of programs for the gifted in British Columbia in 1975. She had also served as president of the BCTF provincial specialist association, Association of Educators of Gifted, Talented, and Creative Children in British Columbia, and a director of Talented and Gifted Canada (TAG). Contacts were also established in Ontario, where programs for the gifted had been in existence for several years. It was learned that Saskatchewan, too, had established programs for gifted students several years ago and had recently renewed their efforts.

It was decided that both Dr. Sillito and Dr. Wilde would visit the Coquitlam School District where they could gain valuable information from Mrs. Lewis, visit established programs, and interview teachers and children. It was expected that from this visit two things would result: (a) Mrs. Lewis could help with further contacts, especially in the United States, and give some insight into how British Columbia had

started their gifted programs and (b) there could be mutual agreement on which aspects would be most important to explore in future visits done separately by the researchers. It had been previously decided that Dr. Wilde would visit selected centres in Eastern Canada and the United States, while Dr. Sillito would visit centres in the western parts of both countries.

As a result of the visit to Coquitlam and a review of some literature, it was decided to gather information on as broad a scale as possible. It was agreed that the following categories of information would be most beneficial in order to achieve the purposes of the study:

1. Description of the jurisdiction, including such factors as size of the district in area and population, occupations and socio-economic data.

2. Statements of relevant legislation within either the state or province as well as local school board policy.

3. Procedures the district used to initiate their program. This would include all preparation before classes actually began, thus indicating the necessary lead-time.

4. Types of programs offered and how these were developed or selected. Included would be a description of the curriculum, materials, facilities and pupil grouping procedures.

5. Pupil identification and selection procedures.

6. Teacher selection procedures.

7. Inservice arrangements including types, frequency, instructors and the most appropriate time for sessions to be held.

8. Parental involvement in such activities as developing curriculum and student supervision.

9. Funding of the program, especially whether it was a grant or a part of the base budget.

10. Program evaluation procedures. There was a need to know who carried out the evaluation and on what basis, who was included for reaction and whether or not the evaluation resulted in change.

11. Relevant research projects including reports and documents.

12. Administrative structure within the district and within the school relating specifically to programs for the gifted.

13. Recommendations based upon experience.

14. Contact people who might provide more information or act as consultants to school jurisdictions developing programs for the gifted in Alberta.

Dr. Melvin Ladson, Jr., Deputy Director of Talented and Gifted, in the U.S. Office of Education (USOE) in Washington, D.C. was contacted in an attempt to determine the most valuable sites to visit in the United

States. He responded by providing the names and addresses of all state directors for gifted and talented programs and a list of all projects funded by the USOE in the current year (1981) and the year previous. Through these lists, previous contacts and published articles it was possible to select individuals with whom to communicate and thus determine the specific visiting schedule.

In Canada brief questionnaires were sent to all Departments (Ministries) of Education and all provincial teacher associations asking for information about programs for the gifted and soliciting the names of those in positions of responsibility. Much valuable information was received at that time, and contacts were followed through by letter and telephone in the fall of 1982.

In Alberta a similar questionnaire was sent to all Alberta Teachers' Association locals and school jurisdictions. Though Alberta Education had previously contacted school jurisdictions and the data was available, it was deemed wise to make a further attempt at identifying those jurisdictions who had programs currently underway and those who were planning to establish programs for the gifted.

From information received in the questionnaires sent to Alberta school jurisdications, it was decided to make on-site visits to the following districts: Calgary Public, Camrose Public, Red Deer County, Lethbridge Public, Grande Prairie Public and Edmonton Public. It was also deemed desirable to gather information from other sites either through visits or by mail. These visits were left to the autumn of 1982 since at that

stage the researchers might be more competent to assess the merits of current programs and provide suggestions that would be most appropriate to Alberta and especially the Medicine Hat Public School District.

Dr. Sillito visited centres in British Columbia, Washington, Oregon, California, Arizona, Utah, Idaho, and Montana. En route he was able to attend the California State Conference for Talented and Gifted, attend some district inservice sessions and make on-site visits to several schools.

Dr. Wilde visited three school jurisdictions in metropolitan Toronto and the surrounding area as well as St. Paul, Minnesota and Bismarck, North Dakota. There were numerous opportunities to interview program directors and school principals and to visit classrooms.

Through the personal visits the researchers gained a broad perspective of gifted and talented programs. It soon became apparent that only a few models were being employed to accommodate the gifted, with adaptations made to local conditions. (These findings are discussed in depth later in this report.)

Nature of the Data

The data collected consisted of information received from those directly involved with programs for the gifted. Many reports and documents were provided by state/provincial departments and local school jurisdictions as well as by individuals interested in the project. Information was received during interviews at on-site visits, telephone conversations

and the researchers' classroom observations. The data encompass some statistical information as well as descriptive information about such matters as curricula, student and teacher selection and administrative policies. Included also are the perceptions and recommendations of those individuals closely associated with educating the gifted.

Data Analysis

The data are basically non-statistical and descriptive. They describe administrative relationships, student and teacher identification procedures, curricula and delivery systems and evaluation procedures, and they also illustrate various theoretical models and reasons for accommodating the gifted student. Through an informal analysis of the descriptive data an attempt was made to formulate principles out of the various program elements. There was also an attempt to report exceptionalities or alternatives in programs that are unique or which could foster development of the special gifts children exhibit. Though relationships are noted where possible there is no attempt at explanatory analysis, that is, to note the causal relationship between or among variables. The authors have endeavored to provide a perspective on what is happening in the field of education for gifted children, assemble some theoretical information relating to the gifted, and state some major implications needing the attention of educators.

CHAPTER II

THE NATURE OF GIFTEDNESS

> "We are really dealing with a highly complex construct when we use the term 'gifted' and hence have to approach handling it in ways that will allow its complexity to become evident."
>
> Joseph Khatena (1979)

Controversies

In common usage we speak of giftedness as though it is a well defined concept which leads to a clear understanding of who is referred to by the term "the gifted"; however, in educational practice, the concept of "giftedness" is by no means clear. There is confusion in terminology; disagreement over which exceptionalities either singly or in combination qualify a child for the designation of gifted; ignorance about the compounding effects of combinations of exceptionalities; lack of knowledge about most individual exceptionalities and about the relationship of personality characteristics to giftedness; and of course, the continuing debate over genetic endowment versus environmental contributions. A brief consideration of each of these facets of the problem as it relates to the nature of giftedness follows.

Terminology

Gifted or Talented?

In common usage we speak of gifted musicians or artists and talented actors. However, the current practice in education of gifted students

is to reserve "gifted" as a descriptor for the cognitively exceptional child and "talented" for the unusually able in visual and performing arts. There is, in this dual labelling, an implied difference in kind between high cognitive ability and exceptional ability in visual and performing arts, with the further implication that the latter ability is of a lesser kind. This view is now being vigorously challenged. Further discussion of this point appears in Chapter IV.

Precocity is usually used in its dictionary meaning of exceptionally early development; some psychologists suggest that all giftedness is merely precocity.

Exceptionalities are norm-referenced extremes of abilities in such areas as cognitive ability and academic achievement. In other areas such as leadership, music or social intelligence, the term is still used although the concept is much more vague. Also the percentage of a population so defined varies from place to place. Sometimes it is decided by administrative or even legislative fiat!

Creativity has a variety of usages, ranging from a model by Barbara Clark which integrates intuition, thinking, sensing and feeling to the rational thinking constructs implied in the Torrance Tests of Creative Thinking and similar instruments. Common use of the term most often refers to innovativeness in arts or crafts. Confusion results from use of the term where its meaning is not specified or where the meaning cannot be inferred from the context.

Leadership is a poorly defined concept. It sometimes means charisma but more often refers to a set of vaguely defined skills whose product is commitment of individual efforts to group enterprises. The usual list includes communication skills, awareness of affective factors, consideration and ability to decide on and establish group structure.

Intelligence is not always restricted in its intended meaning to results of cognitive tests of mental abilities. When used otherwise, however, the term is usually compounded in expressions such as social intelligence so that its meaning is clear. What is not generally understood however is the nature of intelligence. (A further discussion of this point is given in the section on exceptionalities in this chapter and again in Chapter IV.) In practice exceptional intelligence is the single exceptionality most often associated in practice with giftedness although even those using intelligence as their working definition of giftedness are quick to repudiate in theory the equivalence they have adopted in practice.

Enrichment may mean extension of curricula into normally consequent levels, or inclusion of "broadening" materials, or inclusion of materials not usually included in the curriculum at all. Terminology descriptive of program types, a further source of failure in communication, will be defined in Chapter VII.

The Exceptionalities of Giftedness

Which exceptionalities constitute giftedness? In what degree? And in which combinations? These are primary and basic questions. A secondary but also basic question is, "How are exceptionalities discovered and measured?"

Pre-eminent among the candidates for inclusion in an exceptional category is cognitive ability, normally referred to as intelligence quotient (IQ). All theoretical and practical definitions include it; no one argues for its exclusion although there are many who are concerned about the validity and accuracy of its measures. Other candidates for inclusion are creativity, leadership ability, psychomotor trainability and, more recently, and almost apologetically, visual and performing arts capabilities.

Other characteristics have proponents. Persistence is frequently noted as an ingredient in achieved gifted status. Is it a necessary characteristic? Often altruism and ethical sensitivity are observed in connection with high cognitive ability. What are their roles? Ability to empathize is scarcely mentioned except in relation to the performing arts. Capacity to feel, interpret and express emotions is a factor in creative writing, art, music, drama and possibly other less obvious activities. Is it also an exceptionality contributary to giftedness? Also noted occasionally is an attribute variously called common sense, horse sense or street savvy.

Personality

Are there other personality characteristics which produce men and women who are recognized as outstanding by their own or succeeding generations? What characteristics are identifiable in statesmen like Lincoln, war heroes such as Churchill, interpreters of social forces such as McLuhan or Toffler, educators such as John Dewey or John Gardiner, scientists such as Einstein, inventors like Bell, charismatic leaders such as John Kennedy, scalpel-sharp social commentators/ entertainers such as Jimmy Durante or Bob Hope, or giants of the irrepressible human spirit such as Terry Fox? If in people such as these there are other exceptionalities, can they be discovered and nurtured in the schools? Should they be?

Many of the above questions are currently unanswered; some are probably unanswerable. But whether or not answers are at hand, the questions themselves should not be forgotten because they strongly suggest a broader perspective than is implied by current practice.

Combinations of Exceptionalities

A program in Vancouver, Washington is unique in that it is designed to serve a combination of two exceptionalities, cognitive ability and divergent thinking (one type of creativity). Selection procedures and instruments, curriculum, and evaluation of student achievement are all designed to be appropriate for students with those exceptionalities. The program, which is detailed in the support papers for this study, is unique not especially because it encompasses two exceptionalities (some

other programs are broader) but because of the consistency and fidelity with which the entire program focuses on the two and because it can provide information about this combination of exceptionalities.

Broader programs which typically include cognitive, creative, high achievement, and visual and/or performing arts capabilities do not lend themselves as well to tightly planned curricula or to study of the effects of the various combinations. Eligibility is usually based on exceptionality in one or more of the capabilities so that the students served exhibit a greater variety in combinations of exceptionalities. It is therefore difficult to program and evaluate with any degree of specificity. A strategy frequently observed in the broadly based programs is to attempt to individualize the curriculum. The difficulties associated with individualization ensure that it is more often stated as an aim than achieved in practice. Difficulties in implementing an individualized curriculum are enhanced by the unusual variety and degree of differences among the gifted but ameliorated somewhat by smaller class size. The most common basis for individualization is student interests; however, programs which routinely and consistently explore and catalogue all of the exceptionalities found in gifted students are practically non-existent. Admittedly this exploration is difficult.

Models presented later in this chapter suggest that giftedness should be defined as a mix of several types of exceptionalities .

Exceptionalities: Exceptional Problems

All exceptional capabilities which are of interest to educators, and particularly to educators of gifted students, are measured by products which usually represent a very small sample of the great variety of observable behaviors which are the domain of the exceptionality.

Problem solving ability, for example, is measured by a dozen or so items on a test. The single score obtained is hypothesized to be a valid measure of dozens of kinds of problem solving. This is obviously a shaky hypothesis. This is even more so if it is realized that not all behaviors which could be classified as problem solving have been, and perhaps cannot be, identified and classified. There are doubtless problem solving procedures which have not yet been invented. So "problem solving" is and must continue to be an abstraction. In psychology such an abstraction is called a construct.

This illustration serves to identify two types of ignorance which render difficult the use of a psychological construct in education. The first is basic: we cannot know to what extent the theoretical construct is representative of the reality. In this illustration the ignorance is in the extent to which the concept of problem solving ability represents the actual mental machinery for problem solving and the individual's ability to use it. The second type of ignorance is a measurement uncertainty which is threefold in nature. First, we never know how representative the sample of behavior (kinds of problem solving behavior in this illustration) is of the totality of categories of behavior there

are in the construct. Second, we do not know whether it is appropriate to sum subscores. Third, we are ignorant about the relative value of various kinds of behavior. Is, for example, the "translation of verbal problems into mathematical statements" of more, less or equal value to "manipulation of the mathematical statements to the point of identifying a solution"? These problems appear to be inseparable from the use of any complex construct in education.

Intelligence. All of the usual "kinds" of giftedness found in special programs for educating "gifted and talented" students are constructs. Cognitive ability (almost always used synonomously with intelligence) is universally used. It is also both the most complex and most studied. The best known longitudinal study is that by Terman (1925). Despite the studies, however, intelligence is still the source of much controversy. It is still true that "intelligence is whatever it is that is measured by IQ tests". Barbara Clark (1979) sketches the 100-year history of studies of human intelligence from Galton to present research. This history moves from the notion of a fixed IQ with a preset pattern of growth and decay, through findings showing the effect of environment, to present theories of interactive development of genetic endowment and environmental stimulation with its implications for optimizing environmental influences, that is, for education.

Creativity. There is disagreement over the nature of creativity, which Terman argued was essentially Spearman's general intelligence factor 'g' notwithstanding Guilford's work on divergent thinking. Getzels and Jackson (1962) found a basis for concluding that specific attention should be accorded to creativity in education programs. Frank Laycock (1979) cites Liam Hudson (1966) as vigorously challenging the concept of creativity distinct from general intelligence. Michael Wallach and Nathan Kogan (1971) compared "creative" with "intelligent" children and concluded they had distinct characteristics although they paused short of the conclusion that intelligence and creativity are independent. Barbara Clark (1979) argues enthusiastically for a much more holistic and integrative concept of creativity which involves intuiting, sensing, feeling and thinking. On the basis of this model, previous arguments which are founded on studies using only instruments for measuring divergent thinking lose their impact. Clark asserts:

> The categories of creativity incorporate these functions: (a) rational thinking; (b) high levels of emotional development or feeling; (c) talent and high levels of mental and physical development, and (d) high levels of consciousness, resulting in use of imagery, fantasy, and breakthroughs to the preconscious or unconscious states. (p. 245)

Whether or not Clark's model represents closely the creative capability, it is a rich source of research possibilities. If it errs, it errs on the side of more elaborate rather than very limited educational provisions for creatively gifted children; she suggests strategies for developing each of the four aspects of creativity. It is of interest to

note that Clark dichotomizes creativity and giftedness; the title of her chapter is "Creativity: A Companion to Giftedness".

Leadership Ability. The nature of leadership ability is much less well defined and understood than either intelligence or creativity. It is included in definition statements, the most notable being that of the U.S. Office of Education (see Chapter V, "Identification"), but its inclusion in definitions is not a reliable indication of its appearance in programs for gifted students; few programs exhibit a considered and extensive program in leadership. A 1977 survey in British Columbia by the Association of Educators of Gifted, Talented and Creative Children reported that only 2% of programs have a specific leadership orientation although up to 30% list some provision. Where a leadership component is specified, the program appears to be in a developmental stage with no clear statement of what leadership ability is, or what instruments and/or processes identify it. There is doubt about how, or even if, it can be taught. Paul Plowman (1981) notes , in "Training Extraordinary Leaders" that:

> Leaders are persons who get other persons to act - often to accomplish specific short-term objectives. Extraordinary leaders are persons who get other persons to resolve complex situations and problems and to attain long-range goals. They generate brilliant ideas and plans. The extraordinary leader uses expertise from a number of sources, discovers and develops latent capabilities of followers, ferrets out the real problem from a host of apparent problems, and is quick to communicate solutions. At times, this type of leader organizes work and solves problems in ways which seem bizarre, but which actually result in greater achievement than with traditional methods.

He argues that these behaviors suggest the need for exceptional characteristics such as those typical of gifted and talented persons, that is, being able to change one's orientation to the meaning and use of objects, processes and systems; using facts in new ways; seeing new relationships; arriving at useful and creative solutions to problems of organizations; and being able to move toward agreed-upon goals. Terms describing these with leadership ability, according to Plowman, include charismatic, relational, intuitive, forecasting, analytical, generative and synergistic.

Lists of leadership products such as lists of common behaviors and descriptive adjectives of identified leaders do not explain leadership ability any more than intelligent behavior defines intelligence because in both cases the behaviors and adjectives are only samples. In the descriptive adjectives category, for example, words like manipulative, aggressive, ruthless, deceitful and propagandist might be included because they also appear to have been operative characteristics of leaders who have succeeded in achieving objectives of the group.

Psychomotor Ability. High psychomotor ability is recognizable in behaviors of surgeons, athletes, musicians, choreographers, typists and others. Schools typically provide programs for those exhibiting psychomotor exceptionality, if at all, through extracurricular or co-curricular activities, leaving much of the training to amateur or professional sports organizations, music and dance schools and similar institutions. Thus the nature of the construct, psychomotor ability, is

not only insufficiently understood, but is also of lower priority in most educational programs. Since exceptional behaviors and giftedness in psychomotor skills are so readily observable, especially, for example, in competitive sports, it might be the easiest of the exceptionalities to understand. Although this may be the case, there are unique problems which render the seemingly easy analysis formidably difficult. The behaviors usually are specialized by the time they are recognized as exceptional. An exceptional tennis player, for example, does not usually exhibit exceptional ability in all or even most other sports. So the observable behaviors are rather narrowly sampled, being restricted to those contributing to tennis skills. It is also probable that differing behavior patterns are mutually inhibitive. For example, a soccer player might have to unlearn some typical soccer behaviors in order to play football successfully.

Visual and Performing Arts Capabilities. In visual and performing arts the construct considered as characterizing a kind of distinct giftedness is in question for two reasons. First, it has a considerable overlap with psychomotor skills. (Does this mean that it is essentially the same but possibly coupled with heightened sensory perceptiveness?) Second is the idea that the intellectual behavior needed to generate a visual or performing arts product is essentially different from the cognitive ability needed for any other exceptional product. Is the perceiving, analyzing, reordering and representation-making of the recorded reality implicit in any exceptional fine arts product equivalent to other exceptionally intelligent behavior? Is it different in kind? Is it lesser in quality?

Constructs

The basic impediments to discovering the nature of the various exceptionalities (and hence of giftedness) and assigning measures to them are illustrated in Figure 2-1.

Figure 2.1

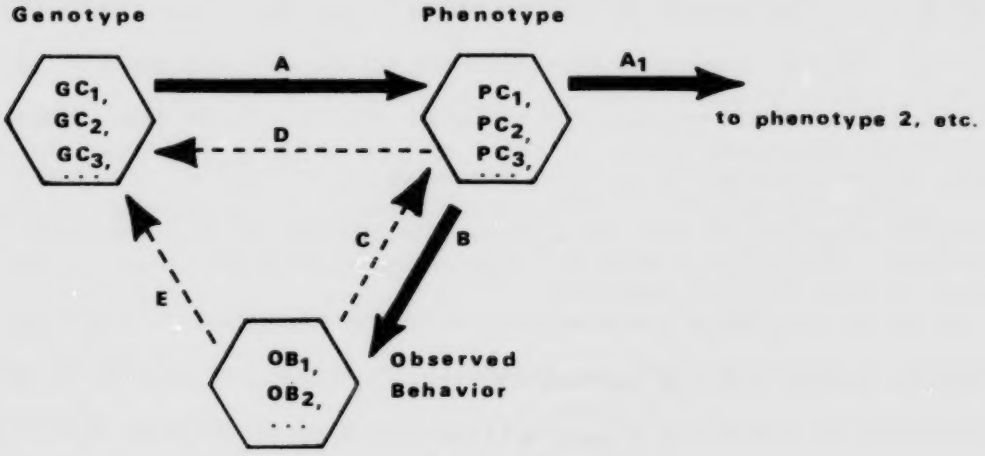


Figure 2.1 illustrates the major strategy (until recently the only strategy) for finding out the nature of constructs such as intelligence and psychomotor ability. The first hexagon, representing the inherited components of individual characteristics such as intelligence, is called the genotype. GC1, GC2, . . . represent the constructs such as intelligence and psychomotor ability which are hypothesized to be inheritances. Arrow A represents factors which modify, elaborate and perhaps even eliminate inherited characteristics over time. These

factors are of two general kinds: (1) internal developments (developmental stages) and (2) environmental interaction (environmental influences). The second hexagon representing the modified individual characteristics existing at some time after inheritance has been determined, is called the phenotype. PC1, PC2, . . . represent the constructs as they exist at the time the observed behaviors, OB1, OB2, . . . are recorded (arrow B). The totality of these observations is represented by the third hexagon. Broken arrow C represents the process of inferring and hypothesizing about the constructs in the phenotype, and arrow D represents inferring and hypothesizing about the constructs in the genotype. Arrow E is the same inferential process directly from observed behavior to genotype.

The Problem with Constructs

The difficulties in discovering the nature of the various constructs in giftedness are obvious from the diagram. First, the set of observed behaviors is only a very small sample of the behaviors which typify the construct. It cannot be securely known whether the sample is representative. It is clear, for example, that the responses on an intelligence test are not typical of all kinds of intelligent behavior. It is clear also that the observed behaviors are always subject to observation errors. The hypotheses therefore are subject to not only these two uncertainties but also to the limitations of the inferring and hypothesizing process. The validity of phenotype constructs is at best uncertain, and the validity of those in the genotype is tenuous indeed.

As if this is not enough, two other factors are largely unknown. First, to what extent do various constructs reinforce each other and to what extent do they interfere? It is a commonly held belief that verbal fluency reflects a kind of intelligence which pays off on verbally loaded IQ tests. Yet there seems to be a need for complementary intellectual skills to constitute high intelligence. The results of the program in Vancouver, Washington strongly suggest a combinatorial effect of IQ and creativity. The second factor is the extraordinary diversity among students identified as gifted. Not only are the gifted at the extremes of the usual measuring scales where the results tend to be unreliable but also a great diversity can be observed in a group of students identified as gifted, even in a common area of giftedness.

The point of the above discussion of problems in knowing the nature of giftedness is that the most secure information available about students, gifted and otherwise, is observed behaviors. The information becomes progressively more in doubt as we proceed to generalize and compare children on the basis of constructs and their measures. In consequence a suggested attitude toward giftedness is presented later in this chapter. First, however, amplification of the following concepts is necessary: observed behaviors of gifted students, developmental stage theories and interactive studies, contributions from brain studies, contributions from affective characteristics, and models.

Behaviors of Gifted Students

The previously noted point, that observed behavior is the most secure information available about gifted students is certainly not lost: it is a dominant theme in discussions on giftedness, it is a common component of identification programs, and it always appears i curricula for teachers and parents.

Lists of characteristics considered as hallmarks of gifted students were a feature of almost every identification program encountered in the survey leading to this report. (Attribution to various authors in the following section is as encountered in the survey and may not accurately represent the origins of the lists in whole or in part. In any case, the lists have many common inclusions.)

Delp and Martinson, (1974) hold that a high level of intelligence makes certain demands on the gifted individual. The behavior of the individual is a consequence of these demands; in essence the demands on the individual become the demands of the gifted student on teachers, parents and the curriculum. Their list includes such items as demand:

1. for knowledge,
2. to focus on and devour a subject,
3. to be creative,
4. to concentrate,
5. to resist routine,
6. to express ideas and reactions,
7. to seek mental peers,
8. to have time for thinking and solitude, and
9. to be outgoing.

To understand the development of such demands would be to understand something about the nature of giftedness; to know how to generate and encourage such demands would be to be able to generate and nurture giftedness.

Clark (1979) lists 38 observable characteristics distributed over five general categories (pp. 23-33), provides examples of related needs and states possible concomitant problems. The five categories are cognitive, affective, physical (sensation), intuitive and societal. One paraphrased example from each of the five will illustrate the elaboration of related needs and the possible related problems:

1. Cognitive. Wide interests and curiosity suggest the need for rich experiences and the opportunity to pursue interests in depth. The student may have the problems of conforming to group tasks and "taking on too much".
2. Affective. Unusual sensitivity implies the need to clarify the expectations of others. This may leave the student highly vulnerable to criticism or sense of failure.
3. Physical. Unusual discrepancy between mental and physical development raises the need to understand the student's physical capability. The discrepance may result in the child's concentrating on mental capabilities and thus limiting both physical and mental development.
4. Intuitive. Early concern for intuitive knowledge and metaphysical ideas mean that the student requires an

opportunity to explore these philosophical concepts and receive guidance in developing intuitive energy and ability. The student may have the problem of being considered "weird."

5. Societal. The student often will offer "solutions" to social problems requiring the need for involvement in real problems. There is risk of societal loss if these kinds of gifts remain undeveloped.

Clark's analysis is interesting for a number of reasons. The characteristics are identification marks, putative at least, of gifted or potentially gifted children. Identification is demonstrably related to curriculum. Penalties for failure to develop giftedness are related to the characteristics themselves and hence are more emphatic. But the major reason to consider these categories is that a much more global view of the nature of giftedness begins to emerge.

Vail (1979) lists eight characteristics (p. 27) of the gifted which she feels are pertinent. This list, like Clark's, suggests that giftedness is rooted in several categories of human attributes including the cognitive, affective, intuitive and societal.

1. The gifted mind recognizes new material instead of needing to learn it. It is as though the individual has already been exposed to it and just needs someone to introduce it for review.

2. The gifted mind notices patterns which seem to come automatically whereas the normal person needs to be trained.

3. The gifted seem to have an extra abundance of energy, both physical and psychological.

4. The gifted seem to be endowed with greater curiosity and need to explore and ask questions which are often irritating.

5. The gifted generally display more drive and concentration.

6. The gifted seem to have a wealth of remembered knowledge but may not find memorizing detail by rote to their liking.

7. The gifted are genuinely sympathetic and understand others almost intuitively, being able to perceive truths and facts independent of the reasoning processes.

8. The gifted are divergent thinkers and enjoy open-ended, unanswerable questions.

While people recognized as gifted may not have all of these traits, they do exhibit clusters which "...work together in some mysterious alchemy to produce a gifted person."

Developmental Stage Theories and Interactive Studies

Developmental and interactive factors are represented by arrow A in Figure 2.1. These factors may be thought of as the major influences in changing from genotype to phenotype 1, phenotype 2, and so on. Developmental factors refer to steps or stages in cognitive (Piaget) and affective (Erikson) development which seemingly are prerequisite to subsequent stages. Gowan (1979) has proposed an integration of the two theories with an extension of Piaget's five stages to eight so as to be compatible with Erikson's eight.

The stages are:

Stage	Erikson	Piaget
1	Trust vs Mistrust	Sensorimotor vs Chaos
2	Autonomy vs Shame	Preoperational vs Autism and Doubt
3	Initiative vs Guilt	Intuitive vs Immobilization
4	Industry vs Inferiority	Concrete Operations vs Nonconservation
5	Identity vs Role Diffusion	Formal Operations vs Dementia Praecox
		Gowan
6	Initiative vs Isolation	Creativity vs Authoritarianism
7	Generativity vs Stagnation	Psychedelia vs Conventionalism
8	Ego Integrity vs Despair	Illumination vs Senile Depression

The first three stages occupy infancy, the next three occur in youth, and the last two in adulthood. Gowan's developmental theory states that: stages are discrete (have a discontinuity attribute), they occur in a definite order (succession), and they are marked by budding and flowering of latent characteristics not observable in the previous state (emergency), have differentiation and integration. Gowan observes that environmental stimulation is required for escalation into the higher, self- actualization levels.

Just as developmental stage theories suggest the innate patterns of cognitive and affective growth, interactive studies suggest the contribution of external factors. Two authors, Barbara Clark and Benjamin Bloom, will serve to illustrate.

Barbara Clark Clark's book Growing Up Gifted (1979) uses findings from various research studies to support several conclusions. Clark draws on research from a number of fields including biology, psychobiology, medicine and linguistics for data on how giftedness grows. Some of her findings and conclusions are of interest:

1. Citing Pressey (1964), Goertzel and Goertzel (1962) and others to the effect that stimulating environments at an early age are always a precursor to achieving eminence, she focuses on the early years, concluding that supportive environments will increase the number of children who will be identified later as gifted.
2. Studies of the effect of stimulation on the brains of rats by Krech (1969) and Rosenzweig (1966) show that stimulation serves to increase brain size, mostly in the glial cells and size of neuron cell bodies, and also to increase the chemicals in the brain which are associated with learning.
3. Basing her conclusions on studies of infants by Hayes, White and Held (1965), Clark found that early stimulation evoked typical motor responses earlier and that subsequent learning is achieved more rapidly.
4. Prenatal and perinatal environmental factors affect the infant's development.
5. Babies see from birth (Fantz 1961), are able to perceive patterns and seem to prefer more complex designs.

6. In infancy, being unable to fend alone, the child must be provided with a stimulating environment but by age two the child needs the opportunity to explore on his own.
7. In the period from age 1 1/2 to 4 years a stage of development is reached where the child appears to have an inner ordering capacity for learning language called the Language Acquisition Device (LAD) (Chomsky 1966; McNeill 1966). Clark suggests strongly that this period is the most effective time to teach children to read.
8. The biological aspects of growth are linked with intellectual development (Callaway 1969).

Benjamin Bloom. Another basic finding which appeared in earlier studies has been extended and confirmed by Benjamin S. Bloom (1982). Bloom, with the aid of experts in the various fields, decided on criteria for world-class accomplishment. In each field group of about 25 persons under age 35 who met the criteria were identified, and a retrospective study was undertaken to investigate the "individual characteristics, environmental influences, instruction, motivation, and learning stages which enable persons to reach the limits of knowledge, ability and skill in selected artistic, psychomotor, and cognitive fields". The important characteristics in most talent areas include:

1. Unusual willingness to do a great amount of work to achieve at a high level.
2. Competitiveness and determination to do one's best.

3. Ability to rapidly learn new techniques and other skills in their field.

Bloom's subjects, who were Olympic swimmers, concert pianists and research mathematicians, showed some interesting peculiarities. Olympic swimmers were very much at ease in the water and had a special "feel" for it. Concert pianists had a natural feeling for music; great sensitivity to music; an ability to pick out tunes and harmonies by ear and/or perfect pitch. Mathematicians' childhoods were characterized by questioning of parents and other adults and then making use of the answers; much solitary activity on projects and play as well as solitary thinking; a great deal of independent learning while in high school; and being identified as unusually able in science and mathematics while in high school.

But perhaps the most significant of Bloom's findings relate to the important effects of what he called "markers." In defining them he says, "Markers are for us the attributions of uniqueness or special qualities to the individuals." It was found that the markers, apparently independently of whether they were valid indications of uniqueness, were effective in ensuring that parents provided extended opportunities and also were effective in student motivation. It appears also that activity by the student in the chosen field preceded the identification of the markers and that in typical situations continuing motivation was provided by a succession of markers growing out of the child's progress in the talent field which provided the markers.

Brain Studies

As recently as 1967, Jum Nunnally wrote that brain functioning was discounted as a means of measuring personality traits and that brain wave measurements as indicators of personality traits were at that time not useful and unlikely to be of future use. He concluded that little could be done until better techniques were available. New techniques now include measurement of the magnetic component of the brain's electrical activity, measurement of blood flow into the brain, and possibly ultra sound scanning. The magnetic measurements, though providing feebler signals, are less distorted by surrounding tissues and hence are more accurate representations of the brain's activity.

The volume of blood flow into various parts of the brain during specific mental activities is proportional to the activities of the nerve cells. By injecting a radioactive substance into an artery leading to the brain and picking up the blood flow patterns by an array of scintilloscopes connected to a computer, the blood flow patterns and hence brain activity patterns can be mapped. This process, called positron emission tomography (PET), has resulted in identification of the various areas of the neocortex associated with specific mental functions in the typical human.

Animal studies of course continue to be a source of information which researchers sometimes feel confident enough about to extrapolate to humans. Studies of rats which showed that affection and challenge

increase the substance, myelin, in the brain suggest that affection and challenge are good for child development. It is well known that the physical health of infants is improved by affection; it is also becoming evident that mental ability is improved by affection and mental exercise.

Research also has revealed information about brain functioning differentiation, named hemispheric differentiation, which is of much greater interest to educators. In many typical humans, the left hemisphere neocortex processes information in a linear, analytic, sequential mode while the right neocortex operates in a more holistic, metaphoric, inventive, creative mode. Between the hemispheres is a large connective structure called the corpus callosum which is capable of transferring four billion bits of information per second. The corpus callosum provides more neural interconnection between the hemispheres than exists between the brain and all other parts of the body combined. While it is not always clear that the separation of function is hemispheric in its geographic location, it is agreed that the functions themselves are separate in humans, that the functions are complementary and that both are capable of, and for the benefit of the individual to acquire development through appropriate educational experiences.

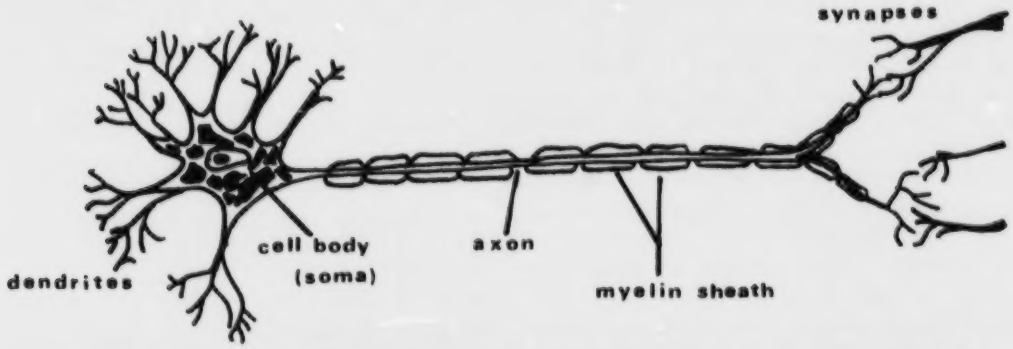
Two other aspects of brain studies are of further interest. The first is the neural structure and function map of the human brain. The second is the growth of the brain from infancy on.

Complexity of the Brain Circuitry System

The brain is essentially a very complex circuitry of interconnecting elements called neurons. The mature brain contains from 10 to 100 billion cells which are constantly involved in exchanging information via synapses among themselves. The 100 billion cells consist of about 10 billion highly interconnected neurons which regulate consciousness, thought and action and about nine times that number of glial cells that support, insulate and nourish neurons. Each neuron is composed of a cell body (soma), branching extensions of this body (dendrites), and an axon or nerve which as it develops coats itself with the waxy substance called myelin. This substance serves to insulate the nerve and provides nourishment. The effect of myelin is to speed up the transmission of information along the axon and thus increase dramatically the amount of information which can be processed in a short time, a facility which is characteristic of gifted individuals. Each neuron has hundreds of dendrites presumably serving differing functions and on each dendrite there are thousands of spikes presumed to differentiate further the dendritic function. It is estimated that the brain can process from 10 to 100 trillion bits of information in a lifetime. Thus for all practical purposes the creative power of the brain is infinite and the brain can never be filled up, but rather the more it knows the more readily it can learn. This information provides a rational basis for suggesting a stimulating environment and explains the beneficial effects observed.

Teyler (1978) and Thompson, Berger and Berry (1980) conclude that information received by a neuron is recorded and stored in the cell body as an image. Figure 2.2 presents a simplified diagram of a neuron showing the cell parts and suggesting the large number of possible connections with other cells.

Figure 2.2



Electrical impulses are received by dendrites and processed by the soma and transmitted to other cells via the axon and synpases.

The resemblance of the brain to a computer is inescapable. But some computer! The three-pound brain would be matched in capacity and circuitry by a 15-ton computer. Like a computer the brain can be programmed. In the brain this is done by development of the axon to bypass some of the neurons and thus establish a preferred path for the electrical impulses. Both simple and complex responses may become automatic as in balance, blinking of the eyes, circulation of the blood, respiration; or semi-automatic in that it requires conscious thought to trigger the program which then becomes automatic in its execution. Consciousness can string together pre-programmed routines to make more

complex responses such as running a hurdles course or solving a mathematics problem by calling on the translation to equations routine and then the equation transformation routines and finally arithmetic processes. Unlike the computer, however, the brain is self-programming.

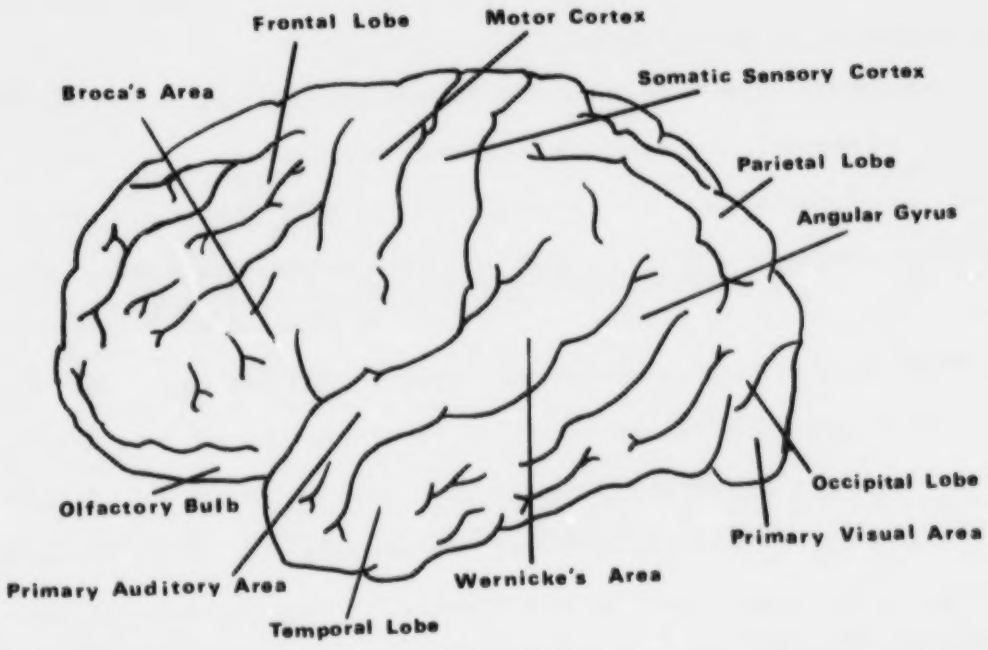
Specialization of Brain Functions

The geographic areas in which the various brain functions are carried out can be mapped. One recently developed process by which this is done, as reported in the August 1982 Science Digest, is positron emission tomography (PET). In this process a radioactive tracer, which mimics the action of glucose in the body, is injected and monitored to show the rates of glucose metabolism. This process has shown, for example, that for an untrained person the right hemisphere is the location of the receptors in hearing music but that trained musicians "listen" with the left. Thus, brain functions are educable even to the extent of relocating the brain's centres of perception. This appears to be a phenomenon similar to the "recovery" of stroke victims who relearn speech or walking.

Maps have been made of function locations in the left hemisphere of adult humans. A typical map is shown in Figure 2.3. It should be noted, however, that variations occur frequently enough to indicate that the atypical is not abnormal.

Figure 2.3

Brain Function



As might be expected, studies in brain functioning have given rise to a number of attempts to measure intelligence by the physical manifestations of neural functioning, most often the electrical impulses. John Ertl (1968) developed a neural efficiency test which related (inversely) the time taken for a stimulus to evoke an electrical response in the brain to intelligence. Schaefer and Marcus (1973) used as their measure the difference between the electrical impulses of expected and unexpected stimuli. Goleman (1976) reports on the

development of a Quantitative Electrophysiological Battery (QB) by E. Roy John and others working at the New York Medical College Brain Research Laboratory. The QB is reported to be more accurate than traditional tests of intelligence. The physiological approach to measuring intelligence is not yet in use to any extent in measuring cognitively gifted students for education programs and it appears that no measures of this kind are even in the process of development for other areas of giftedness.

Growth of the Brain

A mature human brain weighs approximately three pounds or about 2% of body weight. Its importance is suggested by the fact that it uses about 20% of the body's energy. At birth the brain weighs about one pound and its growth is virtually complete at age 16. The rate of growth is not constant. At age 1 1/2 years the weight is about 1 1/2 pounds. In the 16 years after birth the brain growth takes place in only about a total of two years growing time. Even in prenatal growth, the first two trimesters account for only three ounces. In the last three-month period the increase is from 10 to 13 ounces.

Thus, in the development of the brain periods of rapid growth are followed by periods of growth latency which are presumed to be periods in which neural connections (i.e. the programming) are established. The stages of brain growth differ slightly in boys and girls but are not inconsistent with Piaget's developmental stages. The table below shows in simplified form the growth stages and also indicates the first three

of Piaget's stages of development. The actual growing time is estimated at not more than six months in each two-year period, ages 2-4, 6-8, 10-12, 14-16.

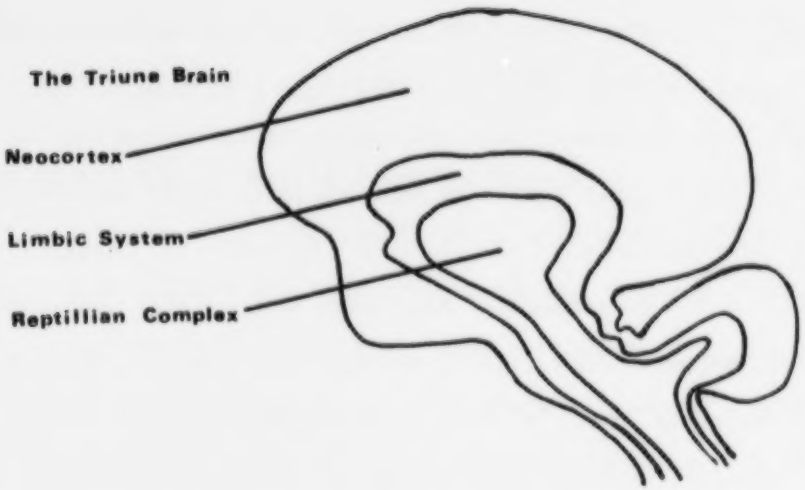
Growth (Age)	Integration * (Age)	Piaget's Stage
2-4	4-6	Recreational
6-8	8-10	Concrete operation
10-12	12-14	Formal operation
14-16	16	

* These time periods are the time when the new neural development is used to discover, explore and form concepts about the environment and self.

The Triune Brain

The human brain is formed of three distinct but interrelated structures as shown in Figure 2.4. The reptilian complex which is complete in the prenatal infant takes care of survival processes such as respiration, circulation, attention, reflex and the stress-related behaviors. The limbic system serves as the brain's emotional mediation center and controls glandular action. The limbic system is the locus of action endorphin and other mood-changing drugs. The neocortex is the center of all higher thought processes. A large part of this structure is unused in the neuro-physical linkage for learned behaviors such as walking or talking. Presumably much of the frontal lobe is available for learning, thinking and other processes as determined by the individual.

Figure 2.4



The neocortex is a relatively thin (about 1/4-inch) sheet about four square feet in area which is convoluted so as to fit into the human skull. It is thought that in the majority of right-handed people, the left hemisphere is concerned with linear, sequential and rational thought while the right hemisphere serves the metaphoric, musical, gestaltic and other special functions. In about 40% of left-handed individuals, the functions of the hemispheres are reversed.

Personality Characteristics as a Component of Giftedness

Qualities of persistence, motivation, drive to complete projects once undertaken and heightened sensory perceptions contribute to actualized giftedness. There are some assertions that they are necessary if not sufficient attributes for achieving giftedness. A corollary belief is that most of these attributes are capable of development and that, on

this basis, giftedness is in some significant measure an acquired attribute. Most arguments on the point, however, presuppose above average intellectual and creative abilities though not necessarily extremely exceptional intelligence and/or creativity. These arguments, coupled with the observations about the significance of markers noted by Bloom and cited above, suggest that many more children would be identified as gifted in elementary and junior high schools if their earlier experiences and environment had been adequately supportive and stimulating. Barbara Clark (1979) devotes her second chapter to a digest of research and to the implications of the chapter title, "Becoming Gifted." While Clark does not address the hoary controversy of "nature versus nurture" she speaks out clearly about the overwhelming importance of early experiences and training to the intellectual and psychomotor development of the child.

An engaging, though at the present time still speculative, basic mechanism by which an interest evolves is reported by Sanborn (1981). Michael Piechowski (1979) claimed that in selecting gifted students for special programs, cognitive components were over-emphasized and others were under-emphasized. He found evidence of five forms of overexcitability: psychomotor, sensual, emotional, imaginational and intellectual. These special excitement areas may exist in the individual independently. He suggests that these excitabilities are primary equipment which may determine not only what the child experiences but how much as well and may lead to preferred modalities of experiencing the world and self-expression also. The excitability

potential, whether or not it is primary equipment, was found to be functional in making some noteworthy achievement in the laboratory. It may be one of the very earliest indications of a developing persistence which almost always is a concomitant of actualized giftedness.

Whether or not the concept of overexcitability is studied effectively will likely depend on involvement of parents and teachers of the early primary grades. There are biographical notes, however, which suggest that overexcitability may be at least an indicator if not a trainable mechanism in "becoming gifted." For example, Luther Burbank's (the "plant wizard") well known childhood habit of carrying with him a potted plant wherever he went, or Wordsworth's obviously autobiographical, "My heart leaps up when I behold a rainbow in the sky..." may be something to look for in our acquaintances.

Historical Notes. Two points arising from the Terman and Johns Hopkins studies, described in more detail in Chapter III, are worthy of note. The first is that from the inception of the Terman study (about 1920) to about 1960 giftedness was almost universally accepted as being the Terman criterion of IQ of 140 or above. However, the Johns Hopkins study of mathematically precocious youth (Stanley, 1974) proved that cognitive criteria alone failed to identify some who were gifted in a specific subject area.

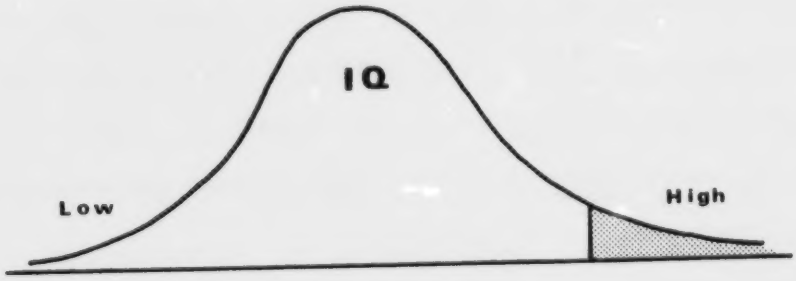
Models

This section briefly describes five models which are illustrative of recent and current thinking about giftedness and which extend the Terman model. The five are included because they represent extensions of the Terman model. It shoulld not be inferred that they include all of the models extant.

Terman

The Terman model (1916) is essentially that high cognitive ability, 2 1/2 standard deviations above the mean, either encompasses or carries in its train all of the necessary characteristics of giftedness.It was Terman's expectation that those who were most able cognitively would become the most productive in their careers. He was both disappointed and surprised when this proved true in only a rather limited field of career endeavor.

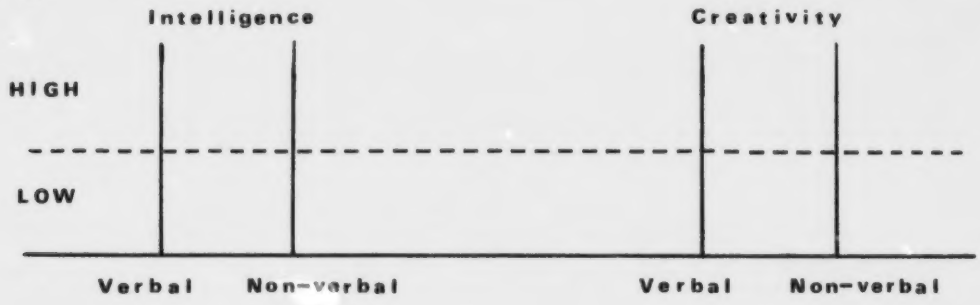
Figure 2.5



Schuman-Torrance

Steven Schuman (Watters and Schuman, 1980), building on the much earlier work on creativity by Paul Torrance and others, has developed a model of giftedness (Figure 2.6) which is a combination or interaction of high verbal cognitive ability and high non-verbal cognitive ability and high verbal creative ability and high non-verbal creative ability.

Figure 2.6

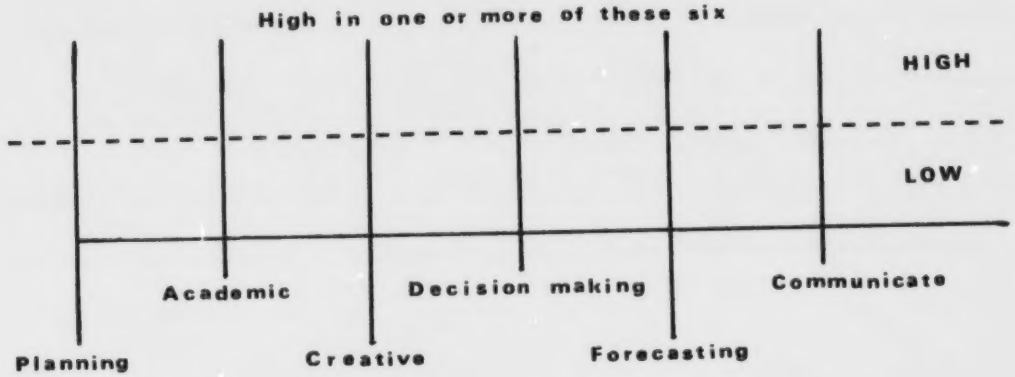


Taylor

Calvin Taylor (1973), building in part upon the work of Guilford, found six intellectual talents: academic, creative, planning, forecasting, deciding and communicating. These he found to be relatively independent of each other. All are capable of extension and development by education. Above average ability in any one of the six constitutes potential giftedness. The consequence of the independence and the definition is that nearly all children are potentially gifted and require only the development of the relevant and the necessary supporting skills. Obviously Taylor is talking about many more children than are

generally referred to as gifted or even potentially gifted. Whether identifying a much smaller percentage (or even a fraction of a percentage) than half of the children in each of the six talent areas would preserve the independence of the six talent areas has not been reported in materials available to this study. It was found, however, that the model has practical use in curriculum strategies and is referred to in this context later in this document.

Figure 2.7



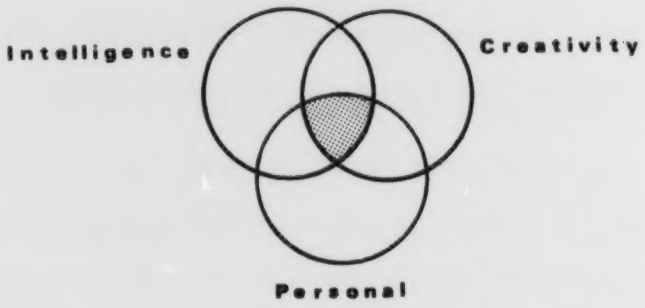
Renzulli

Joseph Renzulli (1968), working post facto from biographical materials on achieved giftedness, has concluded that three attribute areas are responsible for achieving recognition as gifted. These are:

1. above average intelligence (Renzulli suggests an IQ of 120 plus),
2. high motivation and other traits relating to task commitment, and
3. creativity.

Renzulli considered that all of the three traits are necessary conditions for a gifted individual.

Figure 2.8



New York State University (Albany)

The University of the State of New York, in a publication entitled, Guidelines for the Identification of the Gifted and Talented, presented a model which extends the concept of giftedness and suggests what would be meant by potential giftedness. The model is most simply explained by use of a Venn diagram (Figure 2.9).

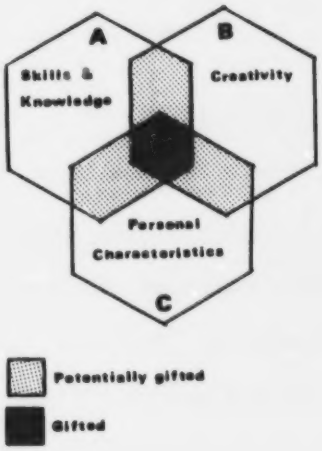
Giftedness, as represented by the black area in the figure, requires a high degree of aptitude for achieving knowledge and skill, creativity, and certain personal characteristics. In the academic area the gifted are one or more standard deviations above the mean on an individual test (IQ) and achieve accordingly. In addition they are creative in enunciating and solving problems. Their classroom behavior reveals their interest, commitment, motivation and self-confidence. The

combination of these three sets of characteristics--aptitude, creativity and personality traits--are revealed by the students' producing and reproducing ideas, products and processes of value. In music as an example of the arts, the gifted student will exhibit such skills as auditory sensitivity to pitch, rhythm, etc. and vocal skill (or psychomotor skills required for playing an instrument); will have the personality attributes of initiative and persistence; and will show creativity through musical compositions or innovative renditions.

Figure 2.9

Hexagon A represents the capacity for acquiring skills and knowledge in all areas relating to a particular kind of giftedness.

Hexagon B represents those aspects of creativity relevant to finding and solving problems.



Hexagon C represents those personal characteristics, such as motivation and initiative, required to acquire the relevant knowledge and skills and to use them in a creative endeavor.

Figure 2.9 illustrates different aspects of giftedness. The gifted are represented by the black area common to all three hexagons. The three shaded areas common to any two of the three hexagons represent the

potentially gifted. That area common to hexagons A and C but not B is called the talent area and students represented are potentially gifted, requiring only the awakening and development of their creativity in order to become gifted. Those in the area common to A and B but not C require development in the psychosocial area and those in B and C but not A require development in their capability for acquiring skills and knowledge in order to become gifted.

The publication of the University of the State of New York goes on to make explicit the characteristics represented by each of the three hexagons and proposes identification procedures for excellence in each. It does not suggest that the students showing excellence in only one of the three areas are potentially gifted, assuming no doubt that two areas of deficiency make too great a hurdle to be overcome. This may not be the last word on the matter, however, because there are known instances of people attaining excellence and even eminence on the basis of very unusual personal characteristics with no apparent exceptionalities in either ability to acquire skills and knowledge or creativity.

Model Summary. It should be noted that these five models are listed in approximately chronological order as well as in order of increasing complexity and inclusiveness. Intelligence, which is the one essential in the Terman model, is one of the two required bases in the Schuman-Torrance model. In the Taylor model it is a component in several of the six areas, but mainly in the academic. For Renzulli an above average level of intelligence is one of three basic requirements. In

the NYSU model, intelligence is only one, but probably the major, capability contributing to acquiring skills and knowledge. This ability in turn is only one of the three basic requirements for giftedness. Creativity appears in all models after Terman. In the Schuman-Torrance model it is the second basic foundation. For Taylor it is one of six independent areas of potential giftedness. In the Renzulli and NYSU models it is one of the three fundamnetal bases. Personal characteristics become one of three components in both the Renzulli and NYSU models. The basis for including personal attributes appears to have been biographical studies of people whose achievements mark them as unequestionably gifted. Regardless of the reasons for their appearance, personal characteristics have become an established part of the concept of giftedness. As already noted there are many lists of characteristics of the gifted. Almost without exception they include both by implication and by direct statement, the personal characteristics of motivation, initiative, self-direction and persistence.

The Models as Framework

The models, of course, do not reveal the nature of giftedness but they do provide frameworks for thinking about it. It is obvious there has been growth in complexity over time. Quite probably the growing complexity reflects an increasing sophistication about the nature of the concept which from the time of Terman has been called giftedness.

The NYSU model is the most complex and most powerful. This model enables teacher, student, and probably parents as well, to inventory

knowledge, skills and personal characteristics in order to discover areas of giftedness. In addition, since each of the three areas (including intelligence) is considered capable of development, this model provides for discovery of the potentially gifted. This is the crucial preliminary task in providing programs for the gifted because teachers and parents must make decisions before students have demonstrated their giftedness through their own achievement. Discovery of the potentially gifted using this model will provide important information about curriculum needs of the student.

What mix of attributes from each of the three basic areas will result in actualized giftedness still remains very much an unknown but the framework will probably facilitate better judgments. Better judgment may increase the number of students selected who have the increased abilities, motivation and self-confidence to actualize significantly more of their own potential.

Chapter Summary

1. Lack of uniformity in meaning of terms used causes some confusion, but misunderstanding of relevant concepts such as intelligence, creativity, leadership and psychomotor abilities causes much more confusion.
2. The limitations of measuring instruments, troublesome even in general applications, cause serious difficulties in assessing exceptional children.

3. Lists of behaviors and other attributes characteristic of gifted children are being used for identification purposes. The lists also indicate that giftedness is broader than simply IQ.
4. The growing belief that intelligence is substantially influenced by environment is having many consequences, one of which is a growth in special provisions for educating gifted students. Another is an expanding concept of giftedness.
5. The Terman study of intelligence provides volumes of information about people with high IQs. The study does not address the question of the role of other exceptionalities. (It may well have been inhibitive. As late as 1979 the California State program for the gifted was both entitled and geared to the "Mentally Gifted Minors".)
6. The Johns Hopkins study of mathematically precocious children provides evidence that cognitive ability tests are inadequate as the sole means of identifying gifted students even in a clearly academic discipline.
7. Brain studies have produced several significant findings.
   a. Information is processed in two different ways:
      1) linear, logical, sequential (called the left hemisphere mode) and
      2) holistic, metaphoric, creative (termed the right hemisphere mode).

   The need for stimulation and exercise of both hemisphere modes is documented; right hemisphere functions complement the left hemisphere functions and improve them. The right hemisphere

provides insight and creative ways of thinking, a characteristic behavior of the gifted.

b. Growth of the brain proceeds by spurts and plateaus; in the first 18 months of post-natal life, the birth weight of the brain is doubled. This not only has implications for early childhood but also supports developmental stage theories of both the cognitive and affective domains.

c. There is promise for developing physiological measures of intellectual ability.

8. The developmental stage theories of Piaget, Erikson and Gowan indicate the appropriateness of a time-sequenced developmental model of mental and emotional development.

9. The importance of motivation, initiative and persistence noted by Renzulli and others was confirmed by Bloom. His study of the effect of markers on giftedness indicates that, given somewhat above average levels of ability, the effect of reinforcement patterns which generate and maintain a motivational self image and high levels of self-confidence is decisive in developing giftedness.

10. "Overexcitability" is suggested as a possible mechanism underlying development of motivation and persistence.

11. Five models (Terman, Schuman-Torrance, Taylor, Renzulli and New York State University) show that the concept of giftedness has expanded greatly since Terman began his classic study. Expansion in the last decade has been dramatic. The NYSU model, which includes the three dimensions of skills and knowledge, creativity and personal

characteristics, may provide a useful framework for thinking about giftedness.

Though much is known about giftedness, much more remains to be discovered and/or invented. What meanings should be attached to intelligence, creativity and potential giftedness? In terms of timing, sequence and curricular content what are optimal strategies for developing intelligence, creativity, psychomotor ability and other such skills and abilities? Is creativity a form of intelligence? What is giftedness? An accumulation of exceptionalities? A working interrelationship? A nesting? Does achieved giftedness require an audience? Is it specific to the milieu in which it occurs? Such important and interesting questions, which are completely or partly unanswered, appear to be endless.

Conclusions

Of first and of major importance is that the concept of giftedness is evolving at an accelerating pace and in at least three discernible ways.

1. Both in the literature and in practice there is a broadening and diversity in the concept of giftedness, including but not restricted to the classical academic gifts. This may be thought of as convergence toward a layman's point of view that gifts are unusual and valuable contributions of individuals and that the gifted are those who are either actually or potentially capable of exceptional products which are highly valuable to the individual and/or to society.
2. There is an obvious trend to include more and more attributes in which a degree of exceptionality is necessary before an individual is considered gifted. The section in this chapter on models illustrates this trend.
3. There is a growing conviction that most if not all of the attributes of importance in a gifted individual are developmental in nature and susceptible to the influences of the child's environment--hence they are educable attributes.

Evolution is fueled by practice and research. Public programs for the gifted raise expectations beyond the academic areas of giftedness. These expectations are fed by politically established definitions such as that of the federal U.S. Office of Education which included high potential in general intellectual ability, specific academic aptitude, creative or productive thinking, leadership ability, [ability] in visual and performing arts and psychomotor ability.

Research is providing an expanding data base about a variety of aspects of giftedness and from a number of sources. Biographical studies, brain studies, and psychological and educational research studies are providing information about environmental influences, brain activity attributes contributing to giftedness, developmental stages and other facets of giftedness.

Implications

The uncertainties attaching to the basic nature of giftedness and the continuing wide-ranging research result the following needs:

1. There is a need for an attitude of open-endedness about the nature of giftedness. The program should have neither the appearance nor the reality of a closed system. Periodic and continuing discussion are necessary to maintain ongoing reappraisal of program, identification of the potentially gifted, curricular revitalization, and parental observation as a source of continuing stimulation to all aspects of the program. Another benefit of open-endedness will be a continuing review of research findings.
2. Schools district should seriously consider generating their own models, including administrative structure, services delivery system, and evaluation procedures, and of course they should generate their own working definition of giftedness. While it likely will never be possible to be definitive about the nature of giftedness, the establishment of a working definition will help to ensure that the program will at least be responsive to local wishes.
3. To avoid confusion, all stakeholders (parents, school board, administration and teachers in the program as well as throughout the system) need to hold a common concept of giftedness.
4. Students and parents need to be well aware that not all types of exceptionality are served by the district. This could prevent some psychic damage to those students who believe they also are exceptional in some way.

5. Identification processes need to encompass both "gifted" and "potentially gifted" students (the distinction is not always readily apparent) and to address the multiple nature of giftedness. The gifted are identified by society on the basis of their products or productivity. Rarely is it possible to use products of an extraordinary kind to identify gifted students because the products usually come later, in after-school years. Yet if the schools and parents are to provide effective opportunity to potentially gifted students, someone must judge the potential and prescribe the curriculum before the products are available.
6. Parental involvement is important and probably essential for a continuous, successful program. In a major portion of the sites visited, parents have been involved in developing identification procedures and curriculum objectives, and assisting with curriculum delivery, program and student evaluation. Parental involvement has had not only a beneficial but often a salutary effect on the vitality of the program.

CHAPTER III

HISTORICAL ANTECEDENTS AND THE CURRENT SETTING

The selection of youth for special services and providing special education for them has ocurred in many ancient, medieval and modern societies. Some examples may help to provide a perspective for the current groundswell of programs for educating gifted students.

Ancient and Medieval Societies

Sparta. This once dominant state of ancient Greece whose rise and fall occurred between 900 and 470 B.C. was an aggressive, warlike nation with a special need for soldiers. Rigorous training was a requirement for all boys who survived the selection procedures. The selection was early, simple and brutal. Infants who were healthy and robust were left to their mothers to raise until the age of 7. The deformed or sickly were left in the mountains to perish. At age 7 the boys were mustered into companies of 15 and kept under the strictest of disciplines, eating and sleeping with the company and receiving instruction in physical education. One of the 15 was made captain and given command over the others. Instruction from age 14 to 30 focused on physical prowess and the arts of war. At 30 the man's education was complete. His duty to serve in the state's military forces lasted until he was 60. The training program made Sparta the dominant state in Greece for several centuries, with the strength to survive even the Peloponnesian War of

404 B.C., until the oppressive political treatment of conquered states and surrounding territories caused revolt and overthrow in 471 B.C. Sparta then became a name in history and "spartan" an adjective connoting unusually strict discipline, exceptional valor and perseverance in the face of adversity.

Imperial China. As early as 2200 B.C., China had a form of proficiency testing as a basis for selecting, promoting or dismissing men from government office. Two millenia later the testing program was used also as a selection device into an education program featuring the Confucian classics, geography, law, military studies and agriculture, and focusing on just government by worthy men. Eight hundred years later (about 600 A.D.) the competitions were still open to all students. By 1300 A.D. the system had evolved into a three-stage program which persisted into the twentieth century, having been adjusted to changing conditions from time to time.

The three stages were marked by a series of examinations each more demanding than the previous one. The first was held at the provincial level, the next at the regional level and the third at the national level with Peking officials setting and marking a series of three examinations each lasting about three days. The program emphasized literature and the ability to write. Its focus was on securing for government office the just, wise, upright and able. The system provided stable government for over 1300 years!

All candidates successful at any level became mandarins. The three designations from the lowest upward were Budding Genius, Promoted Scholar and Ready for Office. The emperor chose a select few of the "Ready for Office" group, gave them a fourth examination and selected one candidate who was titled Model Scholar. The program was for males only, and only the Ready for Office group received appointment to office.

Turkey. For more than three centuries (about 1300 to 1600 A.D.) the Ottoman Empire deliberately chose its ministers from its slave class throughout the empire, which at its height included vast regions of Europe, Asia and Africa. Consideration was not given to wealth or birth but only to those who passed the rigorous screening of an examining board. Examination questions resembled those in modern intelligence tests. Boys (apparently girls were not included) also were selected on the basis of physique and dexterity. The most highly select group, chosen from the already preferred group of palace student pages, became students in the Palace School. Regardless of their origins in terms of pedigree, geography, wealth or lack of it, they were highly cherished and no effort was spared in their nurture. The training was unremitting. Talents useful in government were encouraged, and promotion in the school was based on the useful talents discovered or developed. Incentives by way of stipends and scholarships were extensively used. The curriculum was broad, including several languages and their literatures, philosophy, calligraphy, jurisprudence, logic, mathematics, theology, science and music. Horsemanship and skill in some useful

manual craft were included for insurance if times became bad. The course lasted 14 years before the boys entered regular government service.

Modern Europe

In modern educational history, provision for the education of gifted children, in which they are consciously identified and provided curricula specifically adapted to their needs, is a distinctly recent phenomenon. Few, if any, programs in existence antedate World War II. The nature of education in the nineteenth and the first half of the twentieth century did, however, provide some opportunity for able students. Vernon et al (1977) observe:

> Until well into the nineteenth century there was little problem, since so few children were educated anyway. Those that were mostly came from wealthy families. In England, the sons were sent to so-called 'public schools' such as Eton and Winchester. Classes were small and likely to be grouped according to ability level. For other sections of the population there were the old established grammar schools, which were also fee-paying but usually admitted a proportion of able working class children who won scholarships. Thus they too catered mainly for pupils of above average ability. Similarly Germany had its Gymnasium [schools] and France its Lycee. (p. 2)

A century later, although by then elementary education served the entire population of England and Western Europe, upper secondary and university education opportunities were still restricted by economic class with some opportunity for able working class children. In this era, as in the earlier one, Vernon et al (1977) see some provision for exceptional children:

> Until well into the twentieth century, only the upper- and middle-class children and a few of the most able working-class

> could advance to higher secondary or university education. Moreover, streaming or homogeneous grouping was customary; hence, at least in a rough and ready way, the exceptionally talented were picked out and enabled to progress at approximately their own rate, instead of having to be taught along with pupils of only moderate or inferior ability. (p. 3)

This elitism, mainly of wealth though with some provision for ability not associated with wealth, provided more able students. In democratic countries following two world wars the passing of elitism was inevitable, though it died hard as reference to England will illustrate.

Eleven-plus: England. In the latter stages of World War II, the Education Act of 1944 proposed improvements. Secondary schools were to become available to all, with an examination at age 11 to determine the type of secondary education appropriate for each student. The act declared "parity of esteem" for the various types of high schools but the declaration did not in fact establish equal regard for the various schools. The grammar schools led on to university and were so generally highly esteemed that the 11-plus examinations, the instrument used in screening, became the focus of attention. The examination consisted of three components: cognitive ability, English and mathematics. Since the examinations were national in scope, a lively industry flourished in materials and tutoring services designed to prepare eleven-year-olds to pass the hurdle leading on to university careers. Another examination, at age 13, was supposed to correct errors made in the 11-plus. But the 11-plus became the competition where too many sought places in too few grammar school openings, and the examinations for the 13-year-olds never

served their intended purpose. In effect age 11 became the decision point; the amount of stress on parents and their children can only be imagined. The academically precocious, however, were served in the process.

Nationwide, about 25% went on to grammar schools. The distribution was uneven, with some regions qualifying only about 10% and others as high as 60%. This elitism gave an advantage to those who could afford the extra tutoring and other costs, even though the student still had to be academically able. It could not endure, especially in democratic countries so recently free of wars against totalitarianism.

In England the move to composite high schools began in the early 1950s and was essentially complete a decade or so later. With the passage of the grammar schools, the academically less able gained, in theory at least, equal access to education. However, as an increasing number of students with lesser academic prowess enrolled, there was an extension of curricula to include many more courses, which in turn began to reduce the challenge schools presented to the academically exceptional students.

Western Germany and France made similar changes with some significant differences. In both countries commitment to the kind of high school selected by students was not made until age 15. In Germany, the high schools, though specialized, were sufficiently broad in their curriculum that university admission was still quite open. Guidance for students and their families was a major program feature in these countries.

Laycock (1979) notes:

> France and West Germany have developed elaborate guidance schemes. At school and with their families, pupils between the ages of eleven and fifteen explore their capabilities and related vocational possibilities. Those for whom schools and families agree a university education will eventually be appropriate take examinations for entry into selective secondary schools: in France the Lycee, in Germany the Gymnasium. These examinations do not give weight to tested intelligence but to cumulative academic skills and knowledge. This is in marked contrast to British and American practice, which have included tests of both academic achievement and general intelligence. (p. 103)

Sweden has made what may be a unique provision for determining secondary and post-secondary patterns. Sweden now has a nine-year elementary school with a strong guidance component similar to that of France and West Germany. But the choice of secondary pattern is left to each pupil and his parents. Information and advice are provided but the schools are forbidden by law to assign students to secondary schools.

Composite Schools. The development of schools open to all students and having a broadly based curriculum, large enrolments and departmental specialization is now the typical European pattern, although some school specialization still exists. The pattern is even more universal in the United States and Canada.

Although these schools have the effect of eliminating elitism in educational opportunity because schools are tax supported, it is still true, as Terman found, that children from high socioeconomic family backgrounds prosper better than others. Perhaps, as has been noted elsewhere, this is because they are more able, or because they take

better advantage of the opportunities, or because they have higher expectations of themselves.

Though there are advantages to a broadly based school curriculum, universal elementary and secondary education has some consequences for educating gifted students:

1. Curricula and teaching have been directed toward an average ability level that has probably been declining as the enrolment absorbed more and more of the students in an age-group. Consequently the very gifted academic students have been less well served.

2. Since nearly all students attend school, identification of the highly gifted is enhanced; at the same time the process is hindered by the size of schools and classes individuality is reduced sheer numbers.

3. The school subculture is too frequently an adverse environment to gifted students also need their exceptionalities to be noticed but who also need to be accepted by peers. The effect of the larger schools appears to be particularly troublesome for adolescent gifted females.

The United States of America

That the United States from its inception has had a policy of education for all is a matter of history. Development of industry and emergence as the foremost industrial nation in the world as a consequence of total mobilization of manpower, brain power and industry became a matter of

national pride and satisfaction. A shock wave was sent through this complacency in 1957 when the first penetration of space was made by a Russian satellite, Sputnik I. America's pre-eminence in scientific endeavor was challenged, and education, especially in science, was re-examined. "Structure of the discipline" became the framework for the new curricula built by experts in the field in cooperation with experts in education.

A number of programs for the academically able originated in the first few post-Sputnik years and are still operating. Whether their origin owes anything to the first man-made satellite is not apparent from their history, but activity education for the gifted has, regardless of what may have been the original impetus, expanded at a surprising rate over the past two decades. A large part of this growth is without doubt attributable to legislative action of the U.S. Senate and Congress in 1969-70 followed by the work of the United States Office of Education (USOE) beginning in 1970.

Amendments to the Elementary and Secondary Education Acts were passed in 1965, and amendments to a section of the Higher Education Act relating to teacher fellowships were introduced into the Congress and the Senate in 1969 and enacted in the spring of 1970. In essence these enactments directed the Commissioner of Education to study the need for intervention in education of the gifted, determine whether government agencies were meeting or could meet the need, and to recommend new programs where and if required.

The commissioner reported in August 1971 in two volumes (Marland 1971).

The impact of the report has been very considerable both in the United States and abroad. The definition proposed and validated through the survey has been influential throughout its various states, in Canada and doubtless other countries as well. This definition is (p. I-3 to I-4):

> Gifted and talented children are those identified by professionally qualified persons who by virtue of outstanding abilities, are capable of high performance. These are children who require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and society.
>
> Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas, singly or in combination:
>
> a. general intellectual ability
> b. specific academic aptitude
> c. creative or productive thinking
> d. leadership ability
> e. visual and performing arts
> f. psychomotor ability

The commission made the assumption that gifted students comprise 3 to 5% of the school population (1.5 million gifted students nationwide) and advised on the use of multiple criteria including both objective measures and professional evaluation measures. "Professionally qualified persons" would include "teachers, administrators, school psychologists, counselors, curriculum specialists, artists, musicians, and others with special training who are also qualified to appraise pupils' special competencies."

The report gave three characteristics of differentiated programs. These are:

1. A differentiated curriculum which denotes higher cognitive concepts and processes.

2. Instructional strategies which accommodate the learning styles of the gifted and talented, and curriculum content.

3. Special grouping arrangements which include a variety of administrative procedures appropriate to particular children, i.e., special classes, honor classes, seminars, resource rooms, and the like. (p. I-4)

With a caveat against being too specific especially in legal documents, the report also gives an answer to the question, "What is a good operational definition of 'gifted and talented'?"

> Generally, the following evidence would indicate special intellectual gifts or talent:
>
> - Consistently very superior scores on many appropriate standardized tests.
>
> - Judgment of teachers, pupil personnel, specialists, administrators, and supervisors familiar with the abilities and potentials of the individual.
>
> - Demonstration of advanced skills, imaginative insight and intense interest and involvement.
>
> - Judgment of specialized teachers (including art and music), pupil personnel specialists, and experts in the arts who are qualified to evaluate the pupils' demonstrated and/or potential talent. (p. II-3)

The report indicates that as of 1970, 21 states had legislation to provide support for programs for educating the gifted but that for many of the states the legislation merely represented intent. Leadership at the state level existed in 24 states but the most common pattern was a

single individual with only a part-time responsibility. Personnel training was also in a rudimentary stage although about 40 states having one or more colleges were providing some help. Inservice training was the main teacher preparation activity in practically all regions.

Program deterrents were mainly of two kinds. First was lack of funds. The second, which is related to the first, is that ". . . emphasis on children with specific education problems was using up the available resources. Little or nothing was left over for significant but long-range problems that did not create immediate administrative crises - problems like education of the gifted."

In 1970 four states--California, Connecticut, Georgia and Illinois--had sufficiently sophisticated programs to warrant inclusion in the USOE report. California's program came first with the other three emerging in about the same year or the following one. The history in California began with state personnel exploring the need for state involvement in 1955-56. A state survey was conducted in 1957-60 revealing 17 kinds of programs which included a total of just under 1,000 students. A demonstration project, California Talent Project, was carried out in 1963-66, as was another project under ESEA federal grants to establish a framework for state programs. The Mentally Gifted Minors (MGM) program served an increasing number (and proportion) of students at average costs from $83 extra per pupil in 1961-62 to $121 in 1969-1970. The number of pupils served increased from 38,000 in 1961-62 to about 112,000 in 1969-70. In 1967, a report by the California Assembly Interim

Committee on Education (as cited in the USOE report 1971) concluded that ". . . intellectually superior children are often the most neglected children in the classroom. . ." and made recommendations for increased funding, program support and teacher education. Funds allocated in 1970-71 for support of state consultation and local programs was in excess of $8 million. (In the next decade the annual expenditure more than doubled).

Beginning in about 1960, the other three states showed similar stages of development starting with surveys, legislation, provision of expert leadership at the state level, financial support to Local Education Agencies (LEAs) with a resultant increase in programs and student involvement. Programs also proliferated in the 1960s and even more so in the 1970s.

A major influence in the development and proliferation of state and local programs was the action taken by the U.S. Congress and the USOE. As early as the August 1971 report, the USOE had outlined and in part initiated a comprehensive program of action, which:

1. called for a planning report;
2. made staff assignments to three professional positions in the USOE with support staff, responsible to the Deputy Commissioner of Education;
3. established a national program of research and dissemination of information about successful programs, (in essence a clearing house);

4. used existing federal funding programs to strengthen state programs;
5. provided support for leadership training by funding two national training institutes;
6. encouraged support for inservice education efforts by employers of teachers;
7. encouraged and supported research and development of a substantive nature; and
8. assigned special responsibility to a staff member in each of the ten Regional Offices.

In the decade since the USOE began these activities, most of the present programs for gifted students have been developed. State and local resources have been added to federal aid with the result that as of the end of 1981, all states had state-appointed coordinators and support staff and a substantial majority of LEAs had operating programs. The actual extent of program is not known; no current national survey is available. The matter is beyond the scope of this report but an extrapolation from the states visited would indicate that the majority of the 1.5 million gifted students, perhaps as much as 70 to 80%, have some provision. (For example, California, which in 1970 provided for 112,000 students and spent $8 million, in 1980 spent over $17 million at a much reduced per pupil rate.)

Recession and restrictions on federal spending since the 1981-82 fiscal year have had some far-reaching effects. Federal funds specifically

marked for education of the gifted have essentially been eliminated. The future of the entire USOE is in question; the entire federal office of gifted and talented is expected to be eliminated. A number of states have reduced support and discontinued the practice of earmarking grants for education of the gifted. Local education agencies are also under restraints. The total effect of these restrictions is not yet apparent. In the sites visited since the restrictive measures were put into effect, however, the opinions expressed were that some reductions would occur, even eliminating such positions as the state coordinator, but that the programs in their essential components would survive because they had become part of the base budget.

Canada

Programs in Canada are of quite recent origin and are relatively scarce. A survey in Canada commissioned by the Canadian Education Association in 1980 stated that no funds were specially allocated to educating the gifted by any department or ministry in Canada. Provincial statutes were either permissive in nature or silent on education for gifted students. Since that time, Ontario has passed legislation requiring school systems to make provision for gifted students and British Columbia has developed provincial policies and guidelines published as a guidebook by the Ministry of Education in 1982. Alberta has as of this writing a task force under mandate to make recommendations to the Minister of Education in March 1983.

While there have been a few isolated programs available in Canada on a sporadic basis for the past fifty years, a concerted effort has only recently became visible. A number of local programs have emerged in several of the provinces over the last five years. A 1981 survey by Planning and Research, Alberta Education found that about 20 school systems were operating programs in one or more schools in Alberta. A sample of programs in Ontario, Alberta and British Columbia have been reported to the steering committee in the support papers of this study. Saskatoon was one of the first provinces with a program for the gifted and like Manitoba has renewed its efforts recently. The Teachers' Federation of British Columbia has established a specialist association for teachers of gifted students. A small number of teacher preparation institutions have undergraduate courses, often as a part of special education programs, and a few have graduate study provisions. A beginning has been made, but only a beginning.

International Scene

There are many programs for the gifted operating throughout the world. Russia, China, England, Latin America, Germany, Iran, Sweden, Saudi Arabia and Japan are but a few who have expressed concern about developing the potential of children generally and the gifted individual in particular. Political leaders and educators have adopted the view that gifted people are needed to help solve the many problems we face or will face as nations such as military threat, poverty, conservation of resources, slums, international cooperation, and so on. It is the desire

of several nations to develop the potential of the gifted as leaders and direct them toward political opportunity where they can best assist in solving national and international problems.

Citing activities in a few countries should suffice to show the emphasis on gifted education. In China the expectations of gifted children are high with educational emphasis being placed on service, self-mastery and independent learning. In Japan there is a procedure to select children at age two and emphasize parental guidance so that children succeed academically. Even though Africa has an illiteracy rate of 60 to 70% many Africans are convinced that by developing the gifted their problems will be solved more readily than through other means. Like Venezuela, Saudi Arabia has seen a connection between intelligence and communication skills and has decided it is everyone's right to be intelligent. Some of these countries have taken the stance that education may not be easy or fun but it is necessary and that the gifted need to understand it is their duty to sacrifice their lives and abilities for the good of the nation generally.

Venezuela. Oil rich Venezuela has undertaken what appears to be a massive nationwide program designed to raise the intellectual functioning of all of its people. A Ministry for the Development of Intelligence has been appointed and a ministry established. The program provides for intervention at all ages, with all levels of society and through all agencies accessible to government. A partial listing of the various projects (Republic of Venezuela, 1982) will illustrate:

1. Families are served through prenatal and maternity services, community participation and extensive use of communication media. Project facilitators work with volunteers to extend the effects of thinking, listening and problem-solving to everyday occupational and family matters.
2. Several national agricultural agencies are involved in extending communication and problem-solving skills into rural areas.
3. The Ministry of Education has trained 60,000 teachers of the first three grades in the techniques of cognitive stimulation. Use of high school students to serve the same purpose is under study.
4. Learning to Think programs adapted from the CoRT materials developed by Edward de Bono have been through a pilot study and 1,300 teachers trained to teach the techniques to 40,000 students. A decision to extend the study to all public schools, involving the training of another 40,000 teachers by 1980 year-end, was reported.
5. The Integral Creativity Program aims at developing student's creative capabilities in music, plastic arts, poetry and problem solving.
6. The Instrumental Enrichment Project is carried out in grades 5 and 6 based on the concept that cognitive processing in humans is modifiable.

7. Project Intelligence is a course created for Venezuela by contract with Harvard University.

Although this is not a complete listing, the scope can be imagined. A sense of the mission so ambitiously launched can best be gained by quoting from book by the Minister of State for the Development of Intelligence, Luis Alberto Machado (1980):

> Intelligence is only natural.
> Stupidity requires explanation. (p. 26)

Modern Historic Studies

Lewis Terman, with subsequent help from a number of his students and others, conducted the major pioneering study of giftedness in the United States. His epic study, which focused on observation rather than intervention, followed the life patterns and careers of several hundred "gifted" men and women, using Terman's definition of gifted--having a high IQ. Another longitudinal study designed to investigate one particular kind of intervention for use with mathematically precocious children is being conducted by Julian Stanley (1974) from Johns Hopkins University. Both of these studies are described briefly in the following pages.

Terman

The most extensive, prestigious and long continued study of intelligence is that conducted by Lewis Terman and others. Following development of his original version of the Stanford-Binet test in 1916, Terman set out

to identify 1,000 pupils in the upper 0.5 percentile (140 + IQ) of the test with the intent to follow with a longitudinal study of these students which would continue throughout their lifetimes. In the 1920s Terman had selected 857 males and 671 females who met the criteria. The study focused on 643 of these children (352 male, 291 female) whose ages ranged from 2 to 13 years when chosen. Terman was of the opinion that he had a representative group of those with 140+ IQ and that all were in the upper 1.0 percentile of the population.

In addition to IQ, Terman gathered other information. At the beginning he obtained information from questionnaires completed by parents, teachers and some medical examiners as well as from standardized tests. There was information about height, weight, personal interests, books read in the previous two months by those in the study who could read, play attitudes, emotional stability and character traits. Similar information was gathered on a control group.

Follow-up studies were pursued assiduously and to good effect. Over 90% of the participants were reached when they were middle aged.

Some of the observations are of interest. The highly intelligent individuals were larger, healthier and more vigorous. They began school earlier, nearly half could read before 6 years of age, 20% skipped some or all of grade 2, they graduated from high school earlier than their peers, and they did better on standardized achievement tests. Typically they had broader than normal interests. The typical child was 40% above average in achievement. Ten percent graduated two years earlier than

normal from high school. Eighty-seven% of the men and 83% of the women went to college; graduation percentages were 70% and 67% respectively. About 65% of the men and 60% of the women earned one or more graduate degrees. This is from three to five times better than the record for all college graduates. During school years the bright children read more than other children twice their age, and the level of what was read was more advanced, including more biographies, more poetry, more drama, more history and more science.

In social development the highly intelligent were more stable, persevered in their tasks longer, were more often in leadership positions among their peers and took more responsibility in community affairs. Fewer became alcoholic, psychotic or suicidal. The divorce rate was about average although most appeared to be above average in emotional adjustment.

Terman also found that the parents of the children selected were above average in educational achievement; about 35% of fathers and one of six mothers were college graduates at a time when about 2% of an age group graduated from college. Home background favored whites and those of Jewish origins (about twice the percentage of Jews in the general population). A higher representation from white professional parents also was found, although minority groups and the full range of socioeconomic backgrounds were included. Careers for women who held full-time jobs included teaching, business, science and art although these totalled fewer than half; most were homemaking. Over 90% of the

males were in professional occupations or management positions. The remainder were in agriculture, semi-skilled occupations or retailing. A few were unemployed. Terman noted that the group of men were up to 30 times more prolific than the general average in writing books, professional articles, stories and plays.

The most successful of Terman's group of highly intelligent people were more motivated, persistent, self-confident, and had a more integrative approach toward their goals than were shown by the least successful. Thus in one of the very earliest studies of giftedness (although it was restricted to intelligence) the role of non-cognitive personal characteristics such as drive and persistence is observed.

The most recent reports on the Terman study were prepared by Sears (1977), and Sears and Barbee (1977). Sears found an increasing divergence between the most and least successful men. In other things such as health, self-image and attitudes to work, the general patterns of superiority continued. Among the women, Sears and Barbee found those who held jobs earned above average salaries. The jobs were most often professional. About three quarters of the women had children. Nearly 90% of the adult single women were very satisfied with their adult lives.

Both Sears and Barbee noted that the degree of satisfaction attained depends on earlier experiences and adaptations. It appears to have been the outcome of a set of goals.

Study of Mathematically Precocious Youth

A study of youth exhibiting precocity in mathematics began in 1971 and is still ongoing at Johns Hopkins University in Maryland (Stanley, 1974). All the children in the study showed outstanding ability in mathematics by late elementary school. In the original group several hundred students were identified, and while they were all well above average in intelligence, they were identified as gifted by their mathematical precocity rather than their cognitive ability. Stanley supervised the study but did not offer instruction. Rather, the strategy was one of acceleration through the mathematics courses of elementary, junior high, and senior high schools and colleges.

In addition to exceptional ability in mathematics, the students identified in the project exhibit other more or less common characteristics. The students are mainly creative, socially mature and achievement oriented, and they generally have exceptional verbal skill. They learn much by themselves, are interested in games and puzzles and are assiduous questioners of adults.

There appears to be a sex-related difference in mathematical abilities. Boys who made the highest scores on the 1972 screening test (SAT), about 790 out of approximately 800 possible, were significantly above the top scoring girls' scores of about 600 on the mathematical section. Undoubtedly some of the difference is attributable to differences in role expectations of boys and girls but researchers (Fox, 1976) have concluded that boys excel in certain factors such as spatial perception.

Whether these differences are in the genotype or whether differing life experiences between boys and girls are causative is not known for certain. It is possible of course that the tests are biased in favor of the kinds of experiences typical of a boy's life.

The project, which is conducted on the Johns Hopkins University Campus as well as in junior and senior high schools and on other university campuses, has demonstrated clearly the desirability of radical acceleration for mathematically precocious youth. A spin-off is another similar project for the verbally precocious.

Another clear outcome of this "Study of Mathematically Precocious Youth" (SMPY) project is demonstration of the inadequacies of using cognitive measures as the sole or even the main instruments in identifying gifted children.

Other Studies

Other American studies paralleling Terman's method but with a much shorter time frame and a smaller population were conducted between 1930 and 1950. The studies served to confirm Terman's conclusions that bright children tended to have more favorable physical and social traits as well, that they stayed in school longer and progressed further into post-secondary education.

Studies in England, New Zealand and France found no reason to challenge Terman's conclusions.

Beginning in the same period, a number of retrospective biographical studies were conducted on recognized geniuses to estimate their IQs and to look for common childhood characteristics. Studies of that kind have continued and have established the thread of personal characteristics as a factor in giftedness. The traits of initiative, persistence and the presence of high motivation are now normally included among the identifying characteristics of the gifted.

Another theme has developed in research, mostly over the last three decades. It began as a study of imagination and became a study of creativity. The characteristic called "imagination" has been analysed into components variously stated as problem solving, risk taking, flexibility, fluency, elaboration, perceptual discrimination and others. The creative child has been described as non-conformist and independent. Tests to measure creativity have been developed, notably by Torrance (1966) and Guilford (1959). As already noted in Chapter II, however, definitions and approaches to the study of creativity differ substantially. Notwithstanding this diversity, creativity is now regarded almost as universally as intelligence as a necessary component of giftedness - in concept, at least, if less often in practice. The view held by some investigators, that creativity is a manifestation of the general and/or a specific factor of intelligence, appears to be academic. Whether creativity is a manifestation of intelligence, a component of intelligence or an independent capability, it is considered a necessary component of giftedness.

That the three strands of intelligence, personal traits and creativity come together to form giftedness seems obvious from reported research studies. Some other things are perhaps even more obvious:

1. the research is incomplete,
2. the volume of research since Terman has grown exponentially, and
3. the sources have become diverse.

Personal traits, though noted in many of the most ancient of bibliographies, are the recent addition to the concept of giftedness. They have not yet been operationally defined nor, of course, measured. However, it is already apparent that a high degree of exceptionality in personal characteristics can redress some lower degree of cognitive or creative ability. The value of high motivation is apparent but the implications for education are largely unexplored. Are the desirable traits capable of development, as is widely believed, and are their development a responsibility to be shared by the school? What combination of personal characteristics are needed for a specific kind of giftedness? Studies supportive of the interactive model of intellectual development and the trainability of creativity raise very basic questions in these areas also. Although the research is quite obviously not concluded, programs for gifted students are in progress, often contributing their own particular insights.

The volume of research has multiplied manyfold, especially since the involvement of the US Office of Education in education for the gifted

beginning in 1970. In part, the upsurge has been a direct result of federal activities in commissioning research, in providing incentive grants to states, local education agencies and to individuals, and providing a federal office to serve as an information distribution center for research findings and other data. Another category of research has proliferated, that is, the reporting of prototype programs and their evaluation. One reason for the proliferation in both kinds of research is the requirement that reports be provided when public funds are used in either research or program development. The reports are "in the public domain," that is, not subject to copyright law. Additional research is also undertaken at the state and local levels. Universities are introducing graduate programs which are contributing to the research. The result is a lot of literature!

The usual sources of research--education and educational psychology--are by no means the only sources of relevant information. Psychological and physiological studies of the brain, study of the effects on the brain of nutrition and drugs, the relationship of physiological stages to mental development stages, the effects of environment on learning and even parapsychological studies are contributing information of value in understanding and educating gifted students.

Chapter Summary

History shows that catering to the gifted and developing their special talents is not a recent phenomenon. Ancient civilizations trained exceptional boys for state service: Sparta for war; China and Turkey for

government office. Modern Europe changed from an elitist education to modern state-supported schools accessible to all, a transformation which was essentially complete by middle of the twentieth century. This change tended to worsen education of the gifted although the opportunity to identify gifted students was improved. Universal education in the United States was achieved in the same time frame, or possibly somewhat earlier. In the United States the period from 1960 to 1980 was a time of vigorous development of programs for gifted students. In 1970 the U.S. Office of Education became active, and program development accelerated markedly to 1981. The current recession has caused restraint and its effects are not yet clear. Programs in Canada have also been in existence for some time but have not had the benefit of specific provincial or federal incentive programs.

Terman's study of the highly intelligent served to remove some misconceptions, and may have stimulated some early programs. A study of mathematically precocious youth by Julian Stanley exposed the need for a broader base of identification. Other studies showed the need for introducing creativity and personal characteristics as part of the definition of giftedness. Provision for education of gifted students is a worldwide phenomenon.

CHAPTER IV

VISUAL AND PERFORMING ARTS IN EDUCATION OF THE GIFTED

> "After you understand about the sun and the stars and the rotation of the earth, you may still miss the radiance of the sunset."
>
> Alfred North Whitehead

Why Include the Arts?

Music, art and drama are inseparably entwined with the human experience. For some peoples of the past, art and artifact constitute the only record; even if they are not the only record, the arts always reveal and illumine. They may also be the heralds of what will be and suggest what may be, thus helping to signal choices for the future.

Histories may tell what, but the arts, so much closer to the emotional nature of man, are more reliable in telling why. Sibelius' Finlandia accurately reveals, but did it also help shape the national determination? The Madonnas of Rafael and others reveal the age in which they were painted rather than the model. Wagner's Gotterdamerung and Parsifal tell as much of myths as they do of a nation's risks and aspirations. Four centuries of exposure to Shakespeare have not used up his illumination of human nature; it appears to be timeless. How fortunate that Shakespeare was a gifted poet as well as a genius of drama. How fortunate also that Wagner was both poet and musician.

That the arts give depth and perspective to human hopes and experience needs little argument. But what is their relevance to education for gifted students?

Except for the occasional blossoming in a few places, the arts have not prospered in the schools. They have been considered frills, nice but unnecessary. In eras when strident voices trumpet such directions as, "Get back to the basics," when financial constraints seem to demand a "no frills" school program, and when "education for survival" carries the implication that the arts have no survival purpose, their continued existence in the school curriculum depends on teachers, administrators and boards who continue to believe that the arts have a necessary role in education.

The role of the arts in educating gifted students is twofold. First, among the gifted there seems to be an enhanced need for the contribution the arts make to regular programs. Second, there is the special need of those whose major exceptionality is in the arts. For the latter group arts education is the very breath of their emotional and intellectual life. Because the role of the arts in education is less than universally acknowledged, this report will present some of the claims for their inclusion before going on to discuss the role of the arts in educating the gifted.

The Role of the Arts in Education

Man has always been concerned about the arts because they fill a vital need. Through the arts man is able to express his innermost feelings in a tangible form, and his need for order, meaning and beauty is satisfied. As man puts his emotions and thoughts in concrete form, he is not only better able to understand himself, but others also have the opportunity to know and understand him.

Expanding Thinking and Communicating Skills

Eisner (1981), writing on "The Role of the Arts in Cognition and Curriculum", provides an insightful analysis. He says the commonly held concept of the mind and the role assigned to the arts are disastrous for education. He deplores the tendency to regard as cognitive only those activities of the mind that mediate through words and numbers and to consider the arts as emotive forms that might provide satisfaction but not understanding. He believes that the damaging consequences of this opinion include a distorted view of the status of the various subjects of the curriculum, with the more important ones like mathematics and English requiring more class time and being given the "prime time" spots in the school day. Eisner adds, "... it is important to remember that the concept of giftedness used in many states excludes the fine arts, that tax dollars support programs whose criteria discriminate against students whose gifts are in the fine arts, and that colleges and universities do not consider high school grades in the fine arts when making admissions decisions."

Eisner's thesis is simple. Working from the Dictionary of Psychology definition that cognition is the process through which the organism becomes aware of the environment, he argues: 1) that visual and aural images constitute a way of becoming aware of the environment, 2) that these images lend themselves, without translation into words, to the formation of concepts, 3) that concepts can be grouped and reordered in every way analogously to the use of symbols in language and mathematics, and 4) that the artist, actor or musician can express himself in the same medium to others. In important ways, the fine arts are strategies for perceiving reality, thinking about it both analytically and creatively, and representing the thoughts in ways that others can understand both intellectually and emotionally.

The forms of representation in fine arts are complementary to representation through language or numbers. For some purposes the expressive forms of art or music or dance or drama are more appropriate. In all forms of expression, that is, ways to represent images and concepts, there are three available modes: mimetic, which is a representation of what something looks like; expressive, which conveys the meaning of a concept or emotion; and conventional, which represents a concept or emotion through agreed-upon symbols. The fine arts tend to be mimetic and expressive, mathematics is largely conventional, and language is mainly conventional and expressive.

Eisner's argument is that visual and performing arts expand the ways we can perceive and represent our perceptions and concepts. Consequently

our grasp of our environment, our ways of relating self to environment and our capacity for communication are all greatly improved. This is one compelling reason for including arts as an integral and substantial component in every curriculum of general education; the nature of man's neural equipment provides another reason.

Improving Brain Function

Much current literature on brain function speaks to the two-mind concept--a right hemisphere function and a left hemisphere function. This has far-reaching implications for education. A Meeting of the Minds published by the Utah Alliance for Arts Education (Wilson) elaborates on the various functions of the two minds:

> These two minds are generally represented by the different functions of the left and right cerebral hemispheres. In most adults, the functions ascribed to the left cerebral hemisphere are typified by the linear, rational and digital processes which constitute what is termed the rational mind. The right cerebral hemisphere, however, typically operates through metaphoric, intuitive, and analogical processes and deals with images, figurative meanings and relationships. Therefore, it is the seat of creative, intuitive behavior.

In order for students to achieve their full mental potential, education must help them develop both the rational-analytic and the intuitive-holistic modes. Then they must learn to curtail one when its use is not appropriate to the task at hand, and ultimately learn to exercise both modes in a complementary fashion.

Research also shows that a lack of specialization in one hemisphere or using the inappropriate mode for solving problems can lead to

inefficient mental processes and learning disabilities. A portion of a paper published by the Utah State Board of Education (Talbot, 1980) states:

> Current research on learning and thinking styles as determined by specialized cerebral hemisphere functions (right-left brain learning modes) provides considerable evidence that when the creative, intuitive, symbolic capabilities merge with the cognitive capabilities, a synergy of mind occurs in which the facility with both sets of cerebral functions is enhanced.

If a full and balanced development of the complete individual is to be accomplished, the public school must concern itself with developing the functions of both the aesthetic and rational minds. What is good for the individual is also good for the school. A four-and-a-half year study by Dorothy Wilson (Chico, C.A.) shows that:

1. When educational ecologies were created in which the use of the right cerebral hemisphere was celebrated and enhanced, the students' self-images improved.
2. The quality of the performance of skills typically assigned to the left cerebral hemisphere also increased.
3. In such instructional ecologies, students not only explored a greater number of context areas, but they explored them in greater depth than they had in previous experiences.

There is objective evidence for integration of hemispheric function. It is known that listening to music is for most people a "right" brain activity; for trained musicians the "left" brain is the active part. Whether the training enhances the metaphoric, creative, or holistic "right" brain functions would presumably depend on the quality of the musical training.

Claims from Research and Experience

The following six claims are abstracted from articles by Hebert Kohl (1976). Most of these claims have also been made by a variety of other sources.

1. When students have the opportunity to participate in a good arts program, their reading and math skills show improvement. In one study, even though less time was spent on the so-called core subjects, better results were obtained on standardized reading and math tests.

2. Attendance of both students and teachers improves when there is a good arts program in the school. This can only mean that they feel good about the things they are doing at school -- they are excited about the things that are going on, and they don't want to miss anything.

3. A good arts program provides for the aesthetic education of the whole person.

4. Learning that takes place in art, drama and music classes tends to enhance other subject areas. Information about other countries comes alive through music, drama and art; history and literature become more lucid when integrated with the arts.

5. Morale climbs, and the sense of personal isolation diminishes. People feel better about themselves, start to work together and come up with creative solutions to traditionally difficult problems.

6. In a good arts program a child will have the opportunity to work with his mind, his hands and his eyes, for a more satisfying form of expressing himself.

Arts in Education for Gifted Students

All of the foregoing arguments for the place of arts in school curricula are even more applicable to educating gifted students. Gifted students have an increased need for and greater capabilities in an enlarged scope of perception and expression in the cognitive processes (Eisner). Stimulation of the creative capabilities, equated with "right brain" functioning, is almost universally recognized as the essential component in differentiating curricula for the gifted. If, as is claimed, inclusion of the arts increase the attractiveness and holding power of the schools, the effect is likely magnified for the gifted who become bored or become frustrated because creative outlets are lacking.

Anatomy of Education

One concept of the anatomy of education applies beautifully to the arts. In its simplied form the concept is:

TOOLS ----------> PROCESS ----------> PRODUCT ----------> AUDIENCE

Tools may be thought of as knowledge, skills, the raw materials and the implements of the process. Process will range from replication to complete innovation. Product will range from a duplicate of a model to a totally new creation. Audience will include all assessors of the products whether teachers marking papers, mentors, visitors to art galleries or the audiences of music or drama productions.

Education for gifted students will follow the anatomy suggested above. The differences will be in the nature of the tools, processes, products and audiences. Tools will be more sophisticated and powerful. Unusual raw materials may be used; special and even individually invented skills may be employed. New knowledge at higher levels will be used. Processes will often be more elaborate and will always be more creative. Gifted students will at times make innovative extensions of the processes. Products will show innovation and may be more elaborate, sophisticated, aesthetically pleasing and "finished". Of most interest to the teacher of the gifted will be those products which indicate student growth: progress in solving a particular problem, originality or elaboration of original ideas. But in using products to assess either students or programs there is the risk that quality of product will become the criterion instead of indication of growth. Audiences for the gifted will naturally be more sophisticated, often more specialized and more varied in order to serve adequately the function of providing "markers" (as defined by Benjamin Bloom, Chapter 2) or feedback to the student about his/her uniqueness.

Focus on Process. Educators (and parents to some degree) have a special and unique responsibility for developing programs for the gifted, teaching gifted students and evaluating both program and student. Teachers must focus on facilitating the development of process capability within their students. They must look beyond products, which are likely to be precocious, to the growing process skills. Most audiences

are usually interested in products but among the gifted this is an inadequate basis for judging student progress and program worth.

Groups or Individuals. The arts exemplify another dimension of grouping for teaching and learning. In some subject areas such as art and mathematics the learning unit is usually the individual. In music the learning unit is often a group of individuals and in drama it is almost always a group which must develop its own organic unity in order to be effective. The existence of this dimension within the arts provides challenge and opportunity but needs special attention in curriculum delivery.

The arguments and claims thus far have been of a general nature with application to all of the arts. However, some specific kinds of contributions can be derived from each of the arts areas.

Music. Music is a major source of aural images. Sounds are the main source of input to the neo-cortex, the thinking part of the brain. While other sounds are the domain of left brain functioning, music is usually listened to by the right brain, which may explain the role of music as both background and content. Whether or not it is valid to link with the dual brain function in this manner, the role of music as content is valid, so much so that entire curriculum components in history and other social studies have been built with music as the integrating theme. The use of music as background or for relaxation, or the "centering" concept used to facilitate learning is acknowledged as another substantial functional benefit. In the New Age School (Barbara Clark, 1982) music

seems to have greatly increased rates of learning. The concept has sufficient credibility that the Los Angeles Public Schools have appointed a director of "confluent education." As part of this project music and other devices are used to accelerate learning. The resulting increase of 60 per cent is attributed to a reduction of threat and/or of the boredom of learning which generate protein particles in the brain whose effect is to block some of the neural pathways. Relaxation keeps the circuits open, allowing learning to occur with less interruption.

Visual Arts. Whitehead's statement, "After you understand about the sun and the stars and the rotation of the earth, you may still miss the radiance of the sunset", contains the essence of another argument for art in the curriculum, for everyone including the gifted: art enriches experience. The other main argument is that visual art education, properly carried out, provides an extended repertoire of visual images which can be used to think in spatial, intuitive and metaphoric modes. These images can be used by the mind to think, reorganize and create. At its best, art education provides the elements and processes for another way of thinking. This way of thinking is often a more insightful process which enriches vocabulary and concepts for the sequential processes of the left hemisphere.

Drama

Drama provides unique possibilities in education and (more important for the purposes of this study) for educating gifted students. The opportunities arise from several sources: the group nature of most

dramatic productions, the diversity of skills and gifts required for a successful production, the wide-ranging content of drama, the nature of the props and even the script. These all provide many opportunities, and not infrequently the necessity for, creative effort, the use of the entire spectrum of expressive skills, and feedback from the reality and extent of audience response.

Difficulties almost always attend opportunities. Drama as a creative enterprise in the schools requires unusual teachers who understand drama education as a creative process and who are given the resources and time needed. It is possible and too often the case that a course in drama can be taught as an academic subject with its history, its use of props, the biographies of writers, actors and producers, and other information being learned and analyzed without anyone venturing into the experience. The creative experience has intimidating aspects for teachers, not the least of which is that the learners are not individuals proceeding at their own rates and choosing the content to be learned. Rather, the group is central, and group progress is the measure of success. Individual contribution to the group is the measure of individual progress.

Drama Aids the Gifted. How does drama further the aims of education for gifted students? Here is one general statement of aims for teaching the gifted:

1. Identify and assist the gifted to actualize their gifts;
2. Assist the gifted to establish a working relationship with their world; and

3. Assist the gifted to feel a unity with themselves and their universe.

Drama has the power to enhance all three of these tasks of gifted education.

Identification and Actualization. Drama can play a vital role in both identifying and educating the gifted. At present, the definition of giftedness is so wide that a great disparity exists in identification and formulation of programs. This problem is minimized in drama. Being a synthesis of all the arts, and requiring such a wide range of abilities, drama can compensate for an inadequate definition and identification process. Talents may be used which are not yet defined as giftedness, and drama certainly has scope to accommodate the known areas of leadership, cognition, psycho-motor skills, intuition and affective domains.

Another fear (or problem to some) is in grouping the gifted in one field with those gifted in other areas. The result is a colossal range of varying abilities and potential far greater than the result of grouping the "gifted" with the "normal"". As a partial cure, drama provides outlets for many gifts since it is not only wide-ranging but also functions on many different levels at the same time. In fact, the greater the range of abilities, the richer the process and all its trappings. So, what is a problem in other areas can become an asset and perhaps even an essential in the field of drama.

The creative process in reference to the field of drama has some interesting facets. Wallas, in his "Paradigm of Creative Process", enumerates four phases essential in the process: Preparation, Incubation, Illumination, and Verification. Although not the only area to which these four phases can be applied, drama is certainly one. It has been suggested that teachers in current education techniques too often require an immediate verbal response, thus eliciting a shallow response. Spaces, or time lapses, are needed between the preparation and the result, or illumination. In the actual process of rehearsing a play, or creative dramatics, this incubation period exists. Preparation and illumination occur as a continuing process, detail by detail, to the point where the director refuses to allow more changes.

But the most exciting aspect of drama, and of the creative process, comes from its group nature. People involved in drama or the creative process perhaps for the first time, see around them other people with varying degrees of expertise going through preparation, incubation, illumination and verification not once, but many times. And those weaker in the process profit from the example while doing nothing to weaken those already more proficient. Sometimes this creative process is necessary for group functions and decisions; sometimes it must operate separately for the individual. But the success of others within the same process makes the way smoother and clearer.

Knowledge and knowledge-retention, long a concern of educators and builders of curricula, is undergoing some current, essential

re-evaluation. One of the largest "names" in this area is Bloom. His taxonomy has been faithfully followed by educators in all subject areas as the necessary mode of assembling a curriculum. However, in gifted education, Bloom himself suggests that his taxonomy, or levels of learning, need to be reversed or, at the very least, used on their higher levels. Current education for the non-gifted passes 90% of its time on the bottom two levels, and according to a "Time on Task" survey conducted at Johns Hopkins University, and retention loss is 85%. So even non-gifted students are not doing so well. Drama automatically enters the learning process at the higher levels where retention has been found to be almost magically increased.

Current educational strategies for teaching the gifted split between 1) acceleration of knowledge and its processing, and 2) self-expression or development of individual talents. But most identified gifted are capable in both convergency and divergency, and require integration of the two methods to bring them to their full potential. Furthermore, as Gowan points out, acceleration does not take into account the stages of growth that a child must pass through, and that movement from one stage to another (escalation) is not influenced by acceleration of learning. Escalation is based on the child's experiential learning, or the assimilation and restructuring of knowledge based on his experiences. Gowan (1978) points to the period of 7 to 11 years, where we leave most of our gifted, as crucial and appropriately titles it "Creativity Drop". Renzulli (1968) also makes the observation that, "Creativity is as common in small children as runny noses and yet is quite rare in

adults". Why this loss? It occurs, says Gowan, because of the extinction of right-brain functioning due to over-concentration on the left. Formal operations are taught, and creative ones, those responsible for the intuitive leaps and gestalts of our contributing creative geniuses, are left out.

Drama can certainly assist in maintaining creative operations. Of its essence, it would encourage right-brain functioning and maintain the child's level of creativity. Drama is experiential in nature and, hence can encourage the child's assimilation and restructuring of knowledge. To keep pace with accelerated learning, the judicious use of drama might even provide the increased rate of growth (escalation) from stage to stage that acceleration alone cannot provide.

Peter Slade touches on the same problem, but in slightly different terms, in his book Child Drama. He uses the terms "inflow" and "outflow", and states that a balance must exist between these two processes. The human entity is both a receiver and a sender, and these two functions must balance or a point is reached where the taking in of ideas and experiences ("inflow") is almost virtually impossible. After "outflow", or the pouring out of creative forms of expression, "inflow" is again possible, and even easy.

Essentially Slade seems to be repeating Gowan. They both point out the necessity of experiential learning, and expression, before further assimilation or growth from one stage to another can take place. Gowan points towards the need. Slade settles upon drama as fulfilling that need.

Establishing Relationship with the World. Gifted children must establish a working relationship with their world. Those gifted who are educated to the limits of their gift but kept in isolation from their world lack the raw materials needed to utilize the power they have. Furthermore, those gifted who know neither themselves nor their world, nor the interaction between the two, do not make a significant difference to their world. They do not contribute, and giftedness remains as only potential. Drama's role in this area can be almost limitless.

The group nature of drama is perhaps the reason many have not yet sought to use drama in education for the gifted (the gifted are characterized as preferring to work alone). Yet drama's group nature is in a real sense the source of its power. Drama is concerned with man in interaction with man and his world, both physically and socially. The stuff of Shakespeare is man struggling for meaning: with his life, with those around him and with himself. Drama enables one to "try on" personalities, conflicts and solutions. The raw materials of living are available to be selected and shifted, mixed and matched, almost like putting on a new wardrobe. It places the social world at the fingertips.

Many of the gifted experience a rather isolated education, with little or no social interaction. Drama pulls people together, each with a particular function, and joins the many parts to create a whole through co-operative, functioning forms of creativity. Many educators have noted that the gifted lack interest in competitive sports. Some have

interpreted this general characteristic of giftedness as indicating a lack of interest in social interaction. Instead, it probably indicates a lack of interest in competitive relationships. Drama substitutes co-operative ones. Also, the gifted often have difficulty knowing how to relate to the non-gifted and still accept both themselves and those less able. Drama gives everyone a place, and every part is necessary to the fitting together of the whole.

Not only can drama assist in maintaining right-brain functioning, but it links right- and left-brain functioning (integration) and forms the brain into a working whole. To this time, education systems have been primarily left-brain oriented. If the pendulum were to swing completely over to emphasize only the right brain, education would take a giant step - sideways, but not forward. What is really needed is a brain functioning undivided, with each part contributing its best. Before the final presentation come many little inspirations, originated in the right brain, processed in the left, sent back to the right, added upon and returned again to the left, and so on. The final result might look much like a switchback up a mountain. Many little inspirations are verified and added to before the final end product, an end product which would be considerably lessened by the removal of either left- or right-brain functioning.

Drama fosters a co-operative use not only of people but also of brain functioning, and gives each its place. Unconsciously we learn to shift from right- to left-brain functioning as each is appropriate. Inspiration is rehearsed to provide verification and allow critique.

Perhaps drama was the world's first "integrative education". At any rate it fosters growth in processing skills, and its products are not specific facts nor maximized talents nor an openness to new experiences; but rather all of these, so that a generalized pattern can emerge to attack problems that cannot be foreseen. In a study conducted at Eastgate School in Columbus, Ohio, (Rifkind, 1982) the arts, including drama, were placed in the curriculum through an arts impact program. Four years later it was found that not only did both the teachers and the students enjoy school more and have better attendance, but also the level of skill in the "more academic subjects" improved. The number of sixth graders with a reading vocabulary above grade level rose by 65%. In arithmetic computation, the increase was 56%; arithmetic concepts, 63%; reading comprehension, 41%; arithmetic application, 25%. Drama is integration, and integration seems to increase ability.

Feeling Unity with Self and Universe. The gifted need not only to be in touch with this world, but in order to call upon their highest powers they need also to feel a unity with themselves and with something beyond themselves. The process of drama can provide both self-unity and a link with the universe.

Self-unity is the integration idea of modern education taken one step further. One of the interesting concepts out of the 1982 California Association for the Gifted Conference was that of "centering" as proposed by Barbara Clark through her "New Age School" workshop.

Basically, centering utilizes the processes of creative dramatics to enable the person to become fully in touch with himself. In her book, Growing up Gifted, Clark (1979) builds upon Jung's unity circle, and states that the person cannot fully use one piece of himself or his functioning and leave the rest to chance without weakening creativity. Working from Jung's unity circle, she has come up with a model for creativity according to functioning which she feels permits all existing material on creativity to be organized, and conflicting viewpoints to be reconciled. She uses guided imagery to link intuition, thinking, feeling and sensing in order to give full power to whatever task the individual has at hand. So here again the concept of holistic or integrative education emerges and is tied to drama. And who has greater need of unity than the gifted whose very giftedness creates for them a separateness from their world and others?

"And, yet", states Barbara Clark, "the highest creativity is still more. It includes a spark from another dimension." A reading of the biographical reports of many of our geniuses shows that they would tend to agree with her. For many of them, there was a feeling of being linked to something higher than themselves, of being in touch with the flow of the universe itself as they made their contributions.

Clark notes that just before his death Abraham Maslow added to his hierarchy of human needs a sixth level which he called "transcendence". Transcendence, which he placed just above self-actualization, refers to that sense of unity or interconnectedness that we can feel with

creation. Barbara Clark suggests that with this concept of transcendence the best thought of the eastern (intuitive, meditative) and western (analytic, empirical) worlds is finally linked.

But for centuries drama has been making this link and reaching out to link with the universe in the process. Many individual efforts become something larger than the combined parts of the people in it. For a while they are part of the larger process of creation; hence the intense depression which follows the closing of a production.

The key to truly effective drama programs rests with training and selection of teachers. Renzulli (1968) stated that the single most important factor in successful education of the gifted was the teacher. In the field of drama for the gifted, the impact of the teacher is even more crucial. The teacher must compensate for several problems:

1. Because of our traditional emphasis in education on the tools or products of drama, academically we have not recognized it as process. Instead we have tried to justify the inclusion of drama in the intellectual curricula because of the body of historical knowledge or specific skills which emerge from the product. Modern research and comment, such as Elliot Eisner (1981), should have established the cognitive value of the arts such that we no longer need to apologize or change their basic form to justify their inclusion in the curricula.

2. Though many drama people are themselves creative, they have not learned to, or are not willing to, encourage and permit creative

contributions from others. Many professional drama people wish to stamp their ideas on the production and have the actors and technicians carry them out. If it is to realize its potential in helping students reach their potential, drama must be approached and entered together as process by both teachers and students.

3. Teachers must be free to focus on the needs and talents of the particular group of gifted in their class. The great disparity in abilities, potential and interests among the gifted (far beyond the disparity between gifted and normal) has been noted earlier. The teacher must therefore not be limited or bound in a manner that prohibits establishing a program suitable to the needs of the students. It must also be understood and recognized that this year's students and their needs may greatly differ from next year's.

Whitehead's statement which appears at the beginning of this chapter and is mentioned again with reference to the visual arts, also applies to drama. The business of drama is the sun and the stars and the rotation of the earth. But, above all, drama is the radiance of the sunset, born of the conflict of sun and atmosphere, born of the parts merged into a whole greater than their sum, which can flame up and ignite the fire within us. Drama is process, with a potential in gifted education as rich as that of the gifted themselves - and almost as uncharted.

Programs

Despite the extended and persuasive argument in the preceding section, relatively few arts program components in education are designed for gifted students. Drama programs are scarcest of all, particularly those designed to develop student creativity. The relative newness of most programs in the arts and the increasing attention to arts for gifted students (for example, the 1982 conference of the prestigious California Association for the Gifted featured the role of the arts) indicate that a change is in process. In programs encountered in this survey it has been noticed that where the gifted programs involve directors or other influential educators who have a background in the arts, the programs are more mature, better integrated and more widely accepted. Several program types are in use.

Magnet Schools. Magnet schools offer complete programs, with some having special provisions for the arts. A magnet school for the arts has a number of typical characteristics:

1. Admission is open to everyone (within the grade levels specified by the school) who chooses (or whose parents choose for him/her) to go there. No one is rejected since often talents are discovered in those individuals who have not shown promise. There is also some self-screening by the students themselves.

2. Curriculum includes all the requirements for matriculation and meets all the state/provincial standards. The basic skills of language and mathematics are emphasized, and all subjects are integrated into the

fine arts. For example, mathematics can be integrated into the arts through such activities calculation of dates for the lives of great artists, costs of productions, problem solving and fractions. The production of sound, the development of instruments and pigmentation in paints are science concepts that relate to the fine arts. History comes alive as the lives of great artists and composers are set in a time frame with other historical events.

3. Program is completely departmentalized with one coordinator for each course. Courses and programs are developed by the teachers and include beginning and advanced classes in all the creative and performing arts. Visiting artists and musicians perform for children at their school and afterwards answer questions. The students also visit art galleries and attend formal musical performances. Their art work is displayed in the school and in the community, and there are many opportunities to perform for school and community audiences. This is very important as the viewer and the listener are an integral part of the artistic process.

4. Atmosphere in the school is conducive to developing positive attitudes towards people of other ethnic backgrounds. It is multicultural education for mutual respect in a friendly and exciting atmosphere. The children share common goals, interests and talents with their peers.

5. Staff are chosen who are active in their specialized fields as well as being teachers. Teachers of other subjects are chosen with a fine

arts focus and integration in mind. They are qualified in teaching basic skills and are supportive of the arts. The fine arts teachers are highly trained professionals.

6. Parents are involved in helping with art shows, musical productions, classroom materials, transportation and so on.

Artists in the Schools. Under this program recognized professional artists are employed to provide their expertise to both staff and students for a specified period of time. For that period they are essentially supernumerary staff but work at the discretion of teachers and administrators. Financial support is most often supplied by a combination of funds from school budgets and by state or provincial commissions for the arts or the equivalent.

Pullout. Pullout programs for students whose special gifts are in the arts are rare. One noteworthy example, however, is the Washington state school called the Centrum. It is supported by state funds and provides workshops and courses of various lengths for students who are in regular schools for the rest of the school year.

Out of School. A number of school systems such as San Diego and Chula Vista and universities such as the University of Oregon provide workshops and summer camps for specially interested gifted students. These workshops and camps have been sponsored on a state-wide basis and with a consortium of school districts in such states as Minnesota and North Dakota.

Regular Classroom. Interestingly, classes in drama and art are claimed to be adaptable to the needs of gifted students for opposite reasons. Art is said to be appropriate because so much of art is individual; drama because it is a group activity. The consensus on this point is limited.

Course Options. Especially at the high school level, schools take the stance that they meet the needs of all students with their experienced-based courses. The degree to which courses meet the needs of gifted students is a matter of continuing debate. The believers cite the variety of offerings and the opportunity for self-selection. The nonbelievers point to the fact that the gifted are never identified or their individual needs assessed or the courses adjusted to individual student needs. Essentially the argument is that appropriately differentiated curricula are not provided. This argument is hard to dispose of but the fact is that programs for the gifted are scarce in high schools and junior high schools.

Private Study. As in the case of the psychomotor-athletically gifted, much is being done by private study. In the arts particularly, this option is subject to the time and energy of the student and fiscal support from the family. Further, this alternative does not provide for needs of those students whose exceptional abilities are in areas other than the arts.

Identification

The identification of students gifted in the visual and performing arts is still very much an evolving process. Generally educators rely to some degree on product. In music and art identifiable personal characteristics and specific abilities are used, but no such defining traits have been ascribed to those gifted in drama.

Characteristics of Gifted Students in Visual and Performing Arts

The following lists represent selections from the many attributes mentioned in the literature.

Music The musically gifted student will:

1. be able to recognize quality music.
2. be curious about the how's and why's of music.
3. want to criticize and analyze the work of other musicians.
4. have perseverence, i.e., he will persist in solving technical and interpretive problems.
5. know he has talent. (Some gifted children will recognize the worth of their talent, but others won't. The latter will know they have something different but will need a lot of encouragement and success before they appreciate the value of their talent.)
6. have perfect pitch.

Many musical skills will come easily to the gifted child. He will be able to sing in tune, remember many songs and feelings evoked by certain music, repeat rhythms and melodies accurately, hear the accompaniment to a melody in his head, improvise or make up music as he goes along, learn notation and do sight reading.

Art The artistically gifted student will:

1. know he has special talent. (He will feel good about his work and show pride in it.)

2. focus his attention on the task at hand. (He will stay with each project until it is finished to his satisfaction.)

3. have perseverence. (He will take great pains to solve problems when the less talented would surrender.)

4. want to criticize and analyze the work of others.

5. show curiosity about other artists' work such as the ideas, the execution and the techniques.

Drama There appear to be no criteria and no lists of characteristics to assist in identifying the specially gifted in drama. One avenue being explored in San Juan, California is an attempt to formalize and describe the process of casting by experienced drama teachers.

Artistically gifted individuals often display mature characteristics at an abnormally early age. They will often show considerable detail in the product. An example of this might be that the normal kindergarten child

draws him/herself as a stick person attached to a head whereas the gifted child draws himself with a solid body and limbs, connected by a neck to the head, having eyes, eyebrows, nose, mouth with teeth, ears, hair. He also shows clothes with buttons and other details. The gifted child usually exhibits complex ideas and the ability to elaborate with intricate detail. This child is also the one who shows a sense of perspective in drawings at an early age.

When attempting to identify giftedness in children, both in art and in music, examples of their work should be at hand. In art, two drawings should be done - one from observation and one from imagination. In music several pieces should be performed. It should be kept in mind that giftedness shows itself not so much in beautiful renderings as in inventive, creative and original ideas.

Chapter Summary

An intensification of efforts to provide programs in the visual and performing arts is accompanied by increasing dialogue about the place of the arts in education generally and for the gifted in particular. The arts are held to be complementary ways of gaining information about reality, of processing information and of expressing in expository and/or creative ways. These processes are neither redundant nor unnecessary. They add to the understanding of reality; they may even be closer to reality than the more symbolic learning in the language of speech or numbers. If, as has been charged, mathematics says less and less about more and more things, art can be considered as saying more about fewer

things. Thus it has a complementary message about realities with a specificity which is missing in the symbolic languages.

Brain studies and pedagogical and psychological research suggest strongly the need to provide stimulation to both brain hemispheres and to encourage appropriate interaction between them. Visual and performing arts education is one way of accomplishing this objective. The need for using the arts in general education is enhanced in education for the gifted. Drama, a relative latecomer in the curriculum, may become a winner. Its capacity to accommodate diversity in kinds and levels of skills in a classroom suggest that drama has the possibility of integration across ability groups, age groups and subject interests. This flexibility should permit the use of drama as a strategy for educating gifted students even before criteria are developed for identifying those specifically gifted in the arts.

For all gifted students, the arts can be effective in providing enriching stimulation to both hemispheres of the brain. They can provide complementary ways of relating to reality and an opportunity for developing several modes of creative expression.

For those whose gifts are specific to the arts, the picture is less clear. It is not in the area of identification that the outlook is cloudy although identification strategies range from the subjective to the non-existent. The lack of clarity is in provision of staff, time and facilities. Programs of quality and expert teachers exist, and facilities can be developed, but none of the above exist to the extent needed. Possibly the schools cannot provide.

There are too few students especially gifted in the arts and their gifts are scattered among the various specializations. This lack of numbers may pose acute problems in providing for groups, as can be done in drama.

Implications

1. Since specific attention to the role of visual and performing arts in educating the gifted had generally been neglected, an assessment should be made of the adequacy of current provisions in Alberta for such students.

2. Placing greater emphasis on visual and performing arts in curriculum development will assist teachers and provide opportunities for such gifts to be identified and developed.

3. Since it is difficult to accommodate the specifically gifted in the visual and performing arts, there should be some exploration of the concepts of "centers" where these students could receive professional assistance in short-, medium- and long-term workshops or courses.

4. Since schools already have more than enough to do in educating youth, the possibility of financial support and performing opportunities provided by other provincial government departments, municipal governments, corporations and private enterprise should be explored. In the United States and other countries, such

non-educational institutions provide substantial resources for education in the visual and performing arts.

CHAPTER V

IDENTIFICATION

A list of gifted students is the result of linking a process with a definition. Ideally the process would be infallibly accurate and the definition categorically impeccable, so that all "gifted" are included and all others excluded. Although the purpose of this chapter is consideration of the process of identification itself, the effects of interaction between process and definition are also of strategic importance.

This chapter will identify two general strategies for identification and give examples of the least common one. The other more common strategy will then be discussed in relation to the corresponding definition, criteria, instruments, procedures used and population served. A review of an American national survey of identification practices will be followed by some general comments about practices encountered in this study. General suggestions will be offered about procedures, structure and instruments. Selected references for a more in-depth study of this complex field will be included. A set of implications will conclude the chapter.

Strategies

In practice there are two general strategies for identification. The most common is to set up the identification process as a means of operationalizing a previously accepted definition. The other strategy is

to establish a process to identify the gifted and then use the characteristics of the group identified to describe the category. In this chapter the less common strategy be called the Definition Through Process strategy and the more common one, the Definition To Process strategy. These two strategies are not mutually exclusive; in practice each has elements of the other.

Definition Through Process (From Identification to Definition)

In retrospect, Terman's study constituted an example of the process defining the gifted although the original intent was doubtless the reverse, since giftedness was viewed as "ability to achieve at the upper extreme" on a particular intelligence test. The identification process was simple: apply the test, score, and list those above a certain predetermined standard score. Fortunately Terman and his associates and later researchers studied the members of the group identified throughout their school, college, career and later years and voluminously documented and described them. The effect, after 50 years, was a definition by descriptive characteristics of several hundred men and women who in childhood were identified as gifted through a selection process; the definition has now been made in retrospect. The definition is the set of generalizations about the population which can be obtained from the vast literature of the project.

It became obvious in retrospect that the definition did not include all of the kinds of giftedness recognized in the popular use of the term, and also did not sample all of what other researchers considered

intelligent behaviors. The effect on recent research and development in education for gifted children, though hard to document, has been pervasive.

A second example of a "definition through process" strategy (from identification to definition) is much more recent. The Enrichment Triad Model of programming for gifted children developed by Renzulli has been adapted for identification purposes (Delisle, Reis and Gubbins, 1981). In essence the Triad is an enrichment programming model with three types of activities. Type I activities are those designed to develop skills and knowledge useful for every student. Type II activities develop research, analytic and synthesis skills useful for exceptional students and explore areas of knowledge and activity which may be of interest to gifted students. Type III activities consist of "individual and small group investigations of real problems" (Delisle et al., p. 154). The model becomes a selection process when teacher and student cooperatively assess student readiness for a "real problem" and identify appropriate resources and methods. When the project is complete the student engages in another project or returns to the enrichment Type I or II activities from which, at some later time, another Type III activity may be undertaken; hence the name, "revolving door" model.

Some students are exhibiting giftedness in their Type III activities. In this model, giftedness is both topical and temporal: topical in the sense that a Type III activity may relate primarily to one topic such as botany, and temporal in the sense that a student may revolve in and out

of the Type III activities which take place in the resource room (or at least are based there). Students are nominated (20 to 25% of a school or grade population) by teachers, administrators and other professionals as well as by parents, peers and themselves. From 25 to 60% of these undertake Type III activities.

To engage in the giftedness program students are selected by their teachers and themselves on the basis of their performance in Type I and II activities and in enrichment activities.

In this process, motivation is obviously a facet of giftedness. What other general characteristics the "gifted" have in common remains to be described; the "definition" is not yet complete.

Other programs with some similarities to the revolving door model are less structured and formal. In these the process may simply be providing program units and asking other teachers to nominate a few of their best students who could most benefit from attendance. The final selection is made by the teachers of the unit. Information gained from these programs no doubt contributes to definitions of giftedness.

Definition To Process (From Definition to Identification)

This strategy, which develops a process on the basis of a previously agreed-upon definition, is by far the most common. The most widely used definition in Canada and in the United States is that of the United States Office of Education (USOE). This definition was cited in an earlier chapter but is repeated here for convenience.

> Gifted and talented children are those . . . who by virtue of outstanding abilities are capable of high performance. These are children who require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and society. Children capable of high performance include those with demonstrated achievement and/or potential ability in any of the following areas singly or in combination:
>
> 1. general intellectual ability
> 2. specific academic aptitude
> 3. creative or productive thinking
> 4. leadership ability
> 5. visual and performing arts
> 6. psychomotor ability.
>
> (Marland, 1971, p. ix)

Although this basic definition is very broad (as are other operational definitions), the identification processes select (and the programs serve) a limited set of gifted students. Practically all programs encountered in this study served students who exhibited academic giftedness. In most cases the student chosen demonstrated general intellectual ability (category 1 in the USOE definition) combined with either category 2, specific academic aptitude, or catagory 3, creative or productive thinking, or both. Since some high level of academic achievement is required, the academic underachiever is automatically not included unless otherwise identified; exclusion of highly intelligent underachievers is all too common, perhaps because effective programs are costly.

Other definitional features are also used in identification. Many systems include some measure of creativity. Few systems include ability in leadership in any systematic way, probably because of identification problems and also because it is difficult to provide activities and experiences for development. Visual and performing arts abilities are identified much less frequently than academic giftedness because of difficulties in providing programs; provision for the gifted in visual and performing arts may require the addition of costly equipment and facilities. Many systems cannot provide the added facilities and special programs and therefore do not identify, except incidentally, the artistically gifted student. High psychomotor ability is catered to on a much larger scale, with both amateur and professional sports organizations giving support and encouragement.

Emphasis on students with demonstrated academic gifts is frequently a pragmatic, consciously made choice to limit the programs to a size the district can manage. But this emphasis may also be inadvertent; in some cases the nomination procedures may be broad but the fiscal capabilities are limited. In processes using a matrix where a weighting of the items is not pre-assigned, school personnel tend to favor the academic achievers over the often disruptive and non-conforming creatively gifted; this process, in effect, selects mainly the academically able.

In addition to those students with exceptional abilities in visual and performing arts, leadership and psychomotor categories, there are other groups who are not equitably served for various reasons. Those who speak

English as a second language are at a disadvantage where verbal tests of cognitive ability or other standardized instruments are part of the selective process. Racial minorities are similarly adversely affected unless care is taken to use culturally fair tests.

Kindergarten children are seldom included in identification processes because of the continuing belief that no loss is incurred if their intellectual development waits until the normal school entrance age, and because of the well-known unreliability of IQ measures before the age of 7 or 8. Programs which identify gifted children in the pre-school years are few and recent. Two studies, by Robinson (1976) in Seattle and Ehrlich (1978, 1980) at Columbia Teachers' College, New York, indicate that identification of the gifted and talented in the preschool years is possible and that programming is beneficial. The point is recognized by the USOE in the Gifted and Talented Act of 1979, which amends the Education Act of 1978 and mentions children ". . . who are identified at the preschool, elementary, or secondary level as possessing demonstrated or potential abilities that give evidence of high performance capability . . . and who by reason thereof, require services . . . not ordinarily provided by the school." (Section 902, Title IX, Part A, as quoted in Ehrlich 1980.)

The usual result of operationalizing a definition is to limit its intended coverage either intentionally or inadvertently. Intended limitations will confine the categories of gifted children being identified to those which the system can serve. Inadvertent

restrictions, which are caused by biases in the selection procedures, further limit the application of the original definition, often through unstated assumptions which are then not tested.

Work by Karlene George (1979) and Tom Crawford and Karlene George (undated but supported by a 1980 grant from the North West Area Foundation of St. Paul, Minnesota, and by additional funding provided by the Washington State Department of Education Indian Education Programs) brings into question the translation of a definition and program developed within one culture for use in another culture. In the summary of their report Crawford and George (circa 1980) claim:

> The most basic issue is that of definition: what do we mean by "giftedness", and how does this definition relate to the unique cultures (including economic, artistic, literary and philosophical traditions) of Native American communities? . . . giftedness should be defined broadly, including those areas defined by the U.S. Office of Education. We also propose that our understanding of 'giftedness' be based on individuals' exceptional abilities in relation to a range of intellectual processes. These processes will manifest themselves variously depending on the cultural background and values of the student. Key values of Native American cultures - especially individual wholeness and the individual as part of a close-knit society - should assist us in understanding the special abilities of Native American students. Including community members in identifying these special abilities within a tradition oriented Indian community can be a very important step in the identification process. (p. 29)

As the definition is unique depending on what is most useful and therefore highly valued within the culture, the identification process must recognize the uniqueness of the definition. This appears to be the same point made by Bloom (Chapter II of this report) in discussing the role of markers in developing giftedness. Crawford and George state:

> Based upon this understanding of special abilities as defined within and for Native American communities, students can be screened and identified using appropriate methods and instruments. Although a wide range and variety of data should be used . . those instruments which examine intellectual abilities as structurally organized and logically sequenced, allow us to look at all of an individual's abilities in relation to one another. Parents, teachers and administrators are all key. All have important influence . . on the identification process, and should be included in its planning and implementation. (p. 29)

Although Crawford and George do not extrapolate to other unique cultures, the questions raised have at least as much relevance in the context of Canada's "cultural mosaic" as they have in the American "melting pot".

While it is usual and to some degree inevitable that selection processes limit the application of a definition, the criteria for selection should be chosen so as to make the limitation a matter of choice rather than inadvertence. An awareness of the kinds of limitations noted above may help guard against using inappropriate criteria.

Criteria

Multiple criteria are almost universally used in the identification process. Very often multiple criteria are a requirement for school systems using categorical state/provincial funds. Most school districts visited in Canada and in the United States include in policy the concept that the identification process should incorporate a number of criteria. The British Columbia Ministry of Education's Enrichment and Gifted Education Resource Book (1981) states:

> In order to accommodate the great variety of learning styles and needs of exceptional children, multiple criteria and methods, using both criterion and norm-referencing tools, should be used in the identification process. The process moves from the general to the more specific (clinical) as the atypical abilities and intensity of needs increases. (p. 22)

The use of multiple criteria is apparently designed to broaden the basis for decision-making rather than to extend the categories served, although it may facilitate both purposes. The mention of multiple criteria in state enactments and provincial policy statements is primarily a recognition that any criterion is not only limited in its application but also fallible. The point may be made by example. A matrix may be the only criterion used to rank candidates in order and determine admissibility for a program but the matrix is acceptable because it is a composite of a number of sub-criteria.

One criterion may serve a purpose in more than one category of giftedness. An intelligence level well above average is usually required in order for a student to qualify as creative regardless of other measures. As will appear later in this chapter, however, due caution is needed to ensure that a criterion is not used beyond its limitations.

Examples of criteria in use are:

1. Minimum achievement at the 98th percentile on a particular standardized achievement test in mathematics,

2. Minimum achievement at the 98th percentile on a selected intelligence test,

3. Minimum achievement at the 98th percentile on two or more standardized tests in separate subject areas,

4. Judgement as "exceptional" by an expert musician on one or more musical performances,

5. A score in excess of "X" (the stated criterion) on a particular rating scale,

6. A judgment of "outstanding" in a dramatic or other artistic performance of some length,

7. For a casting director, the proportion of "outstanding" castings.

It will be noted that some of the above criteria are subjective while the others are objective. It should be recognized that the decision to use a particular instrument in the first place and then to use it with a particular student are both subjective judgments requiring expertise and that the selection of test items is also quite subjective. It is usually but not always the case that both subjective and objective identification criteria are used in a school system's selection process.

Examples of Selection Procedures

The final selection criteria may be met in any one of three categories: high intelligence, specific academic aptitude or high achievement. In San Juan, California, for example, the high intelligence category criterion may be met by scoring at or above the 98th percentile on the individual Stanford-Binet or Wechsler tests, or similarly on the

Cognitive Abilities Test, or similarly on the Otis Lennon Mental Abilities test. The specific academic aptitude criterion may be met by scoring at or above the 98th percentile on the Iowa Test of Basic Skills (ITBS) in either reading comprehension or total math, or at the same level in one of the four subsections of the Test of Achievement and Proficiency (TAP): (reading comprehension, mathematics, science or social studies). The high achievement criterion may be met by scoring at a minimum of the 96th percentile level in the two subtests of ITBS, or in two of the four in TAP.

In Vancouver, Washington the final selection (except for unusual cases) is contingent on scoring in the top 3 percent of either a school or the whole system in a composite score derived from four group tests: a verbal test of cognitive ability, a non-verbal test of cognitive ability, a verbal test of creativity and a non-verbal test of creativity.

Selection criteria in Camrose, Alberta include teacher recommendations, group achievement tests, group intelligence tests, WISC-R, parent inventory and a student interest inventory. Equal weightings of these six are combined for the final selection.

Austin (Texas) Independent School District (AISD) exemplifies a more sophisticated set of criteria for use in an urban centre of over a quarter million people. 'AISD uses a 143-page manual, A Guide for Identification of Gifted/Talented Students, to give direction to the school-based programs. The manual deals with evaluation issues such as

culturally different, underachieving and disturbed gifted students. A module on giftedness in each of 10 subject areas is included, complete with characteristics of students gifted in that area. Identification procedures are suggested. Nomination procedures are included as well as forms for parent, peer and school nomination. A section on miscellaneous identification instruments is included.

Checklists have become popular guides in the selection process. In Austin, for instance, the academically gifted students must score at the 90th percentile or above on achievement tests and rate "high" on the "Teacher Recommendation on the Academically Gifted" checklist. An alternative criterion is a "high" rating on teacher recommendation on an alternative screening instrument. In areas like visual and performing arts, the criterion is a "high" rating on an appropriate checklist (for example, art, or music, dramatic arts or leadership).

Teacher checklists are often specifically designed for one area of giftedness. Austin Independent School District has a checklist for students who are gifted: 1) academically (also an alternative checklist for the disadvantaged or underachieving), 2) musically, 3) artistically, 4) in drama, and 5) psychosocially (leadership). The checklist for selecting academically gifted students, apparently an adaptation of a Renzulli, Hartman and Callahan (1971) scale, has three parts: Learning Characteristics, Motivational Characteristics, and Creativity Characteristics, with 8, 9, and 10 sub-items respectively. The teacher scores the frequency of described behaviors and, using a weighting,

establishes the student score which translates to "very high", "high", "medium" or "average". A rating of "high" plus a score at the 98th percentile on math or reading comprehension qualifies a student for the special academic program. For other areas of giftedness only the checklist instrument is used for the final selection.

Another procedure is pupil selection by professionals in the field. Students may be recommended by teachers, parents or pupils to attend sessions with professionals who assess their ability. In North York, Ontario students are selected for the School for Arts and Athletics by professionals who work with students and judge their performance. In a two-session selection process, artists may work with children during art projects, judge the product or the potential and recommend students for the selection committee to consider. This would also be appropriate for other areas such as ballet or swimming. This process is not unlike the choosing of basketball or football players at high schools and colleges by highly trained and even professionally trained coaches.

Instruments

Many instruments are used to generate the information required for selecting gifted students; the instruments vary in kind and also according to the human characteristics they are designed to assess.

Kinds of Instruments

Standardized Intelligence Tests. Terman's basic identification instruments were group and individual versions of the Standford-Binet

test of mental ability. These are still basic instruments for measuring cognitive ability but are by no means the only ones. Clark (1979), for example, discusses five individual tests and four group tests of intelligence. Lists of tests of intelligence can be found in the Mental Measurement Yearbooks, (Buros) or in Buros' various listings of Tests in Print. Ehrlich (1980) and Torrance (1980) provide a discussion of various instruments in current use for preschool and primary children.

Standardized Achievement Tests. Achievement tests are in common use, but when they become the sole criteria for selection there is room for controversy. A discrepancy between expected achievement based on cognitive test scores and the actual classroom achievement scores results in the labels "underachievers" or "high achievers." It is not always clear whether high achievement is the result of high cognitive ability or of ambition. If it is the latter, some argue that not only are the overachievers not gifted but also that the regular program is, obviously, the appropriate one.

Standardized achievement tests used in conjunction with other measures is also a common selection practice. Due caution is necessary so as to avoid the ceiling effect and unusual test biases. School systems tend to use the same tests for screening the gifted as they use in regular programs. These tests may or may not be appropriate depending on whether students truly fit into the confines of the norming sample.

Criterion Referenced Tests. When used at all, criterion referenced tests are nearly always constructed locally. Their use in identification is limited. However, they appear to be one of the most useful kinds of evaluation instruments.

Tests of Creativity. While the tests usually used to measure creativity are by Torrance (1966) or adapted from his work, there are other measures as well. If self-actualization is viewed as a way of identifying creative students, The Personal Orientation Inventory (POI) (Shostrom 1964) is a possible measure. (The diverging in views about creativity have been noted in Chapter II). Clark (1979) provides a warning that it may not even be possible to describe, let alone measure, all of the aspects of creativity.

> As we examine the higher levels of consciousness aspects of creativity, we must be aware that much of what happens can only be understood experientially and that rational, verbal explanations dilute the events, for the essence of the experience may be changed by its description. (p. 257)

Clark's excellent analysis of creativity is well worth reading for those intending to include creativity in the working definition of giftedness.

Matrices. Matrices are methods for combining a number of objective and/or subjective measures into one index. The Baldwin Identification Matrix by Baldwin and Wooster (1977) is a flexible instrument which is in wide use. Wherever more than two or three criteria are used in the final selection process, a matrix is commonly used; it is almost necessary if more than a few gifted children are identified.

Rating Scales. Rating scales assigning numerical values to characteristics are used to formalize both subjective judgments and frequency counts. The Renzulli Hartman Scale is in general use although local school systems often develop briefer instruments for their own use.

Biographies. Biographical information is another source of data useful in identifying gifted students. This kind of information, describing the background interests and achievements of students, often identifies special characteristics common to the gifted. One of the more extensive instruments for collecting and scoring biographical data is the Biographical Inventory - Form U published by the Institute for Behavioral Research in Creativity (IBRIC, 1978). The form calls for student responses on 150 items and provides subscores in six areas of student potential: 1) academic performance, 2) creativity, 3) artistic ability, 4) leadership, 5) career maturity and 6) educational orientation. A scoring service is available from IBRIC.

Products and Performances. The ability and acquired skills necessary in art, creative writing, music and drama serve as sources of identification data. In using products and performances, it is crucial that evaluators keep in mind that they must assess present achievement and development as compared to the norm and use this as an indication of potential development. There will be some misses in the process.

Procedures

Procedures for identifying gifted students include initial screening, a final selection, a special cases review, and appeals. Initial screening and final selection processes are universal and almost always formalized.

Initial Screening Processes. School districts often develop a large pool of candidates from which the final selection is made. The revolving door model described previously in this chapter uses nomination by teachers, administrators, other professionals, parents, peers and self to identify the 20 to 25% of a school population from which the 3 to 5% of the gifted might emerge. Austin (Texas) Independent School District (AISD) relies on nominations from teachers, parents, peers and members of the school community to identify a similar-sized pool from which final selections are made. Most systems provide forms and descriptive materials to aid in the nomination process. AISD also provides a list of behaviors which sometimes cause the gifted to be labelled "difficult", such as refusing to do routine drill, exhibiting excessive energy, being non-conforming or uncooperative, appearing inattentive, preoccupied, shy or withdrawn, questioning authority and generalizations, resisting pressure, expressing critical attitudes about themselves and others and being stubborn. In carrying out the initial screening the teachers are provided with a list of 24 cues to link with students. The number of times a student's name appears on the list is an indicator of potential giftedness. In Grande Prairie, Alberta and in some other districts

students are normally referred on the basis of a system-wide group IQ test as well as through nominations by teachers, principals and parents. Inservice education to increase teacher awareness and accuracy in nominating is a common device as well.

Selection Processes. In most school jurisdictions a committee is established either at the district level or at least at the school level to make final selections for the gifted program from the candidate pool. This committee includes the school principal, teacher representatives and central office representatives including a psychologist, and it may include representatives from a parent group though not a parent of a candidate. (It should be noted that in some states parental involvement in pupil selection and curriculum development is mandatory.) This committee receives all of the pertinent data, both formal test results and informal observations and evaluations, and then decides who will be accepted. The principal normally has the final "say" if there is some doubt.

In most districts a number of criteria are weighted and then summed to produce an index. Students achieving a total score in the upper percentiles of the district are usually automatically selected into the program. Some districts have a very complex system of selection which takes many hours for data compilation and decision making, whereas other districts use a rather simplified system. In small school systems wishing to accommodate only a few students, the selection process is merely a comparison of achievement levels of those nominated, with the

top ones being selected. It has been observed that to reduce error districts often begin by using a complex system which is cumbersome and time consuming, but they soon seek ways to simplify the selection process. They have stated that there are no significant differences in who is selected when a more simple method is used.

The total number of students to be selected is usually decided before the process begins. Sometimes this is to be a percentage of the total population, school population or some mix of these. At other times the number of students is prescribed by the resources allocated. One can readily see that the two systems do not usually yield the same number of openings for the gifted. This means that a student living in District A would be accepted into a program for the gifted while if that same student were in District B he/she would not be allowed to attend. These practices appear unequal to the outsider and allow for heated debate and even lead people to question, "Who are the gifted?".

Appeal Procedures and Special Cases. Special cases are most often dealt with by school and district office administrators who receive input from the system's psychological services. These cases could include children who have done very poorly on formal tests but received high ratings from teachers and/or peers. There are times when students have done well on many measures but informal evaluations are weak, leaving the student as a borderline case. There are some parents who question why their child was not selected and will seek an appeal avenue to the selection committee's decision. This has led some districts to establish elaborate

procedures or special committees to review the decisions and rule on these special cases.

Identification of Preschool and Primary Children

Identification procedures and instruments for use with very young children differ from those used with older children. Techniques include personal interviews, biographical data, peer judgments (very limited use), professional judgments, parent nomination, observation, individual intelligence tests, group intelligence tests (usually individually administered), achievement tests, group intelligence tests (usually individually administered), achievement tests, performance, checklists and rating scales. Ehrlich (1980) gives a fuller treatment of this subject and also includes an annotated list of test instruments useful for this age level.

How Many Gifted Students?

The relative size of the gifted population is a source of continuing debate. While the most able performers stand apart from the average and below average, all teachers are aware that there is a gradient from top to bottom which makes it difficult to decide at any point whom to exclude. The USOE suggests that 3 to 5% of the total student population is gifted and this has apparently been accepted. Most programs lie within the 2 to 5% range. Some school systems also have enrichment programs which include up to 25% of an age group. In the Renzulli (1977) and similar models, the enrichment program is the basis for identifying the gifted. Delisle et al (1981) report over half of the enrichment group go

on to Type III activities. It is an important point that the USOE "conservative" estimate of 3% is an estimate. The very distinct impression persists that the percentages served are determined more on the basis of funding considerations than on hard evidence that these percentages accurately define the population for which special programs are required in order that the students in that segment realize their contribution to self and to society.

A general trend in identifying the gifted is toward including not only the academically inclined but also those with ability in the visual and performing arts or leadership. Psychomotor exceptionality has been dropped from the USOE definition largely because these students are often already served. In the visits for this study the only program encountered which expected to accommodate the athletically gifted was North York, Ontario which has established a school for arts and athletics. (This does not mean that there are not others doing the same.) One objective of this program, stated in conversation, is the training of Olympic contenders. The effect of the trend toward inclusion of the arts and leadership in the total percentage of gifted students in any age group is not yet in evidence. The shift has been relatively slight while at the same time the need is beginning to be addressed by schools with special orientations (sometimes termed magnet schools).

An American National Survey

At the time of the Marland (1971) report to Congress, identification practices in the United States were less than adequate.

> Identification of the gifted and talented in different parts of the country has been piecemeal, sporadic, and sometimes non-existent. Very little identification has been carried on in depth, or with appropriate testing instruments. Many of the assumptions about giftedness and its incidence in various parts of the American society are based on inadequate data, partial information, and group tests of limited use. (V. II, pp. 17-18)

A decade later the situation was not greatly improved. Alvino, McDonnel and Richert (1981) conducted a national survey under the auspices of the U.S. Office of Gifted and Talented. They sought from "members of the gifted education community" in the USA ". . . their perceptions and judgments of what constitutes the most frequently and effectively used tests, instruments and techniques in the identification of gifted and talented persons." The data gathered was related to the five categories of the USOE definition which are a) general intellectual, b) specific academic, c) creativity, d) arts and e) leadership; and to five subpopulations, namely a) disadvantaged, b) ethnic minority, c) limited English speaking, d) rural and e) exceptionally gifted.

Conclusions about the appropriate use of instruments as related to categories in the USOE definition are not encouraging:

> The . . . data indicate some disturbing and inappropriate recurrent practices. . .
>
> Many test instruments are being used for purposes and populations completely antithetical to those for which they are intended and were designed.

> Practitioners are using IQ and achievement tests to identify non-intellectual, non-academic talents such as creativity . . . arts, and leadership ability.
>
> Measures of creativity are being used to identify students in all [five] categories.
>
> Measures of general intellectual and specific academic abilities are used interchangeably.
>
> The most significant deficiency . . . is with leadership ability.
>
> Generally . . . a manifest lack of direction, uniformity, and appropriateness characterize the state of the art. (pp. 128, 129)

Instruments used to identify the gifted in the five subpopulations also come under fire. "Thus, in the vast majority of cases, respondents reported using tests/intruments with subpopulations that were not normed for those populations. . . " (p. 129).

The perspective gained from on-site visits undertaken as a basis for this report is not nearly as dismal. While instances were found of misuse of instruments and even of lack of instruments altogether, the conclusions of the investigators is that most teachers were using instruments and procedures which were reasonably well targeted. While actual reasons for the differing conclusions are unknown, two can be suggested. First, the sites visited were carefully selected as representing the best programs available, and second, there is a distinct possibility that identification processes in use are designed for a definition of giftedness which overlaps two or more categories. Thus in a creatively gifted student an above-average measure of intelligence is

also required; consequently both an intelligence test and a test of creativity are appropriate. North York, for instance, reported that 80 to 85% of the gifted students could qualify either for their academic programs or their school for the Arts and Athletics. The findings and concerns, however, raise the question of requirements for an identification program.

Basic Requirements for an Identification Program

Need for some guiding principles is evident from the above and from other research. The Marland (1971) report to Congress noted that group tests identify fewer than half of the cognitively gifted or creatively gifted. Teachers identified even fewer. In other areas of giftedness, teacher accuracy is even less and usable instruments are almost non-existent. Over 57% of schools responding to the survey claimed they had no gifted students. Marland's survey of experts in the area of giftedness favored: early and continuous search; an annual, or more frequent, re-evaluation; multiple means for identification; and involvement of experts such as psychologists, talent specialists, teachers and guidance counsellors. (Administrators and curriculum specialists were ranked lower presumably because of their less frequent contact with students.) From these considerations and other research many general caveats appear. The following are some major guidelines.

Guidelines

A. Definitions

1. Board policy should include a general statement of what constitutes giftedness.

2. The working definition should be an administrative function since it requires periodic revision so as to accurately reflect practice, whether the definition is an outgrowth of program or a directive for program strategy.

B. Expertise

1. Supervision by and/or use of measurement experts is necessary in order to avoid misuse of such instruments as are available and misinterpretation of the results.

2. Development of local tests and matrices may require the service of experts.

3. Development of additional expertise is necessary among two groups: a) teachers of gifted students and b) teachers who nominate students to the programs.

4. Use of outside experts in certain areas of giftedness such as art or leadership may be required.

C. Processes

1. The necessary end result of a selection process is an accurately identified student whose strengths and educational needs are

sufficiently well known so that an appropriate program may be provided.

2. Pre-screening, that is, identifying a pool of students from which a final selection can be made, is necessary only because fiscal resources or other considerations prevent an in-depth analysis of each student. (Such analysis of each student would doubtless benefit education in all classes.)

D. Timing

1. Initial identification should be as early as feasible. Identification in the kindergarten or preschool years is possible, and it greatly facilitates collection of data and provision of services, even though services may be delayed for a year or two.

2. Identification in the school year prior to the year in which the student enters the program is recommended.

E. Feedback

1. Feedback from program operation and from student evaluation and program evaluation are essential checks on the validity of the selection process and operating definition.

2. Informed feedback from regular classroom teachers will provide a check on identification accuracy.

3. Regular interaction between those providing the expertise and teachers in regular classes as well as teachers of the gifted is necessary to increase the level of the expertise.

4. A reasonable but regular schedule of feedback should be part of the operational plan.

Chapter Summary

Gifted students are difficult to identify because 1) the term "gifted" has no universally accepted definition, and 2) educators have not developed infallible instruments for measuring "giftedness". Identification becomes even more complex in that the process of identifying and the definition of giftedness tend to interact. For example, although Terman did not intend it, his use of IQ tests to select gifted students (process) resulted in the definition of giftedness as "the ability to perform well on IQ tests."

For purposes of discussion, when identification methods lead to a definition (as described above), the strategy is called "Definition through Process." The more common strategy, in which giftedness is defined first and then a method of identification is devised, is called "Definition to Process."

The United States Office of Education (USOE) definition of giftedness lists six aptitudes or abilities as criteria. Although this broad definition is widely accepted, in practice most students chosen for special programs for the gifted have demonstrated academic ability. These

students are also likely to be chosen on the basis of their academic aptitude and/or creative and productive thinking skills. Therefore, many potential candidates, such as the artistically gifted or the gifted underachievers, can be left out either intentionally or inadvertantly.

Operating programs for gifted students are using various selection criteria of both subjective and objective types. Although educators rely on standardized achievement and intelligence tests much less so than formerly, because of the possibility of test bias, these instruments are still considered basic. Other selection tools used in various programs include criterion-referenced tests, tests of creativity, matrices, rating scales, biographies, products and performances (as in the visual arts, for example) and teacher and student checklists. Most people responsible for the identification of gifted students agree that the use of multiple criteria makes the process fairer and less fallible.

Identification always includes two stages -- initial screening and final selection -- and often a special cases review and appeal procedures are included as well.

The United States Office of Education suggests that the number of gifted students is 3 to 5 % of the student population. However, the figure may reflect more the reality of finances than any actual need. Also, the trend is to focus on the academically gifted rather than on the gifted in the arts, athletics or leadership.

In summary, a United States government survey found that there are a number of serious problems in the area of identification. Test instruments not only have serious weaknesses, but often they are used inappropriately. Nevertheless, identification programs should improve if those involved adhere to the basic requirements of early and continuous search, annual or more frequent re-evaluation, multiple means for identification and the involvement of experts.

Specific References

Some materials will be of special benefit to those seeking information on identification procedures. Buros' yearbook, Delisle, et al. (1981), Ehrlich (1980), Institute for Behavioral Research in Creativity (1978), Robinson (1976), Shostrom (1964) and Torrance (1980), which are referenced in this report, will be especially helpful. In addition, Clark (1979) and British Columbia Ministry of Education (1981) provide some specific help. Most of the above also provide additional bibliography.

Implications

1. Since identification of the gifted is crucial to program success: a) an inventory of qualified individuals available to assist school districts, including expert consultants in measurement, should be prepared and distributed throughout the province and b) a list of reliable and valid measurement instruments and devices should be provided to school districts.

2. Because educating the gifted is quite new in Alberta, periodic communications noting items of importance in identification matters should be sent to school systems.

3. Because many questions are still unanswered with respect to prolonged performance of those identified as gifted compared to those not accepted into programs for the gifted, developmental and basic research needs to be encouraged.

CHAPTER VI

FOUNDATIONS OF CURRICULUM

Qualitatively Differentiated Curricula

A common belief among the professional educators involved is that curricula for gifted students must be "qualitatively differentiated." Although this belief may not have arisen from the United States Office of Education's definition (Marland, 1971), it no doubt has been heavily reinforced by and widely accepted because of a statement in that definition that, "These are children who require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contribution to self and society" (p. ix). Teachers and administrators frequently volunteered the comment that their curricula were qualitatively differentiated, sometimes creating the impression that if it was not the only hallmark of an appropriate curriculum, it was nonetheless an important one. The reliance on the qualitatively differentiated curriculum concept seems to be as broad as, or broader than, acceptance of the USOE definition.

That a "qualitatively differentiated curriculum" is not a necessary consequence of "differentiated programs and/or services" has drawn little attention either in practice or in educational literature. A service may include other forms of counselling or a program may be accelerated, for example, without qualitatively differentiating the

curriculum. Qualitative differentiation demands more. It is, of course, a way of differentiating a program. Consensus among practitioners is that even if it is not a logical outcome of the definition, it is necessary. This idea is rarely challenged.

Except to note one of the very challenges by Robinson (1977), the remainder of this chapter will implicitly accept the notion of a qualitatively differentiated curriculum as a necessity for gifted children. The tremendous effort expended in local curriculum development lends considerable argument in favor of the need for different curricula.

Halbert B. Robinson, however, argues that gifted children each have one or more "gifts" and that these gifts are a manifestation of accelerated development or precocity.

> I am not saying that there are no ways in which children who have special gifts are qualitatively different. What I am saying is that the only aspect that has been documented so far is that children with special gifts show differences in the rate of their development in the area of their gift as compared with children of average ability . . . not one of these behaviors is remarkable. The extraordinary fact is that they have been mastered by children who are so very young. (p. 8)

Robinson reaches the above conclusion on the basis of his experience as director of the Center for Study of Gifted Children, University of Washington, Seattle and on the lack of documentation he alludes to. He goes on to point out that if--a big "if"--giftedness consists only in precocity "at least during the developmental years . . . , " then special programs are unnecesary; children need only to be allowed to find their own level in the subject areas of their giftedness.

Robinson is cited, not because his argument is persuasive (in fact he himself leaves the impression that his thesis is offered in a somewhat tongue-in-cheek fashion) but because it serves as a reminder that special programs expend a great deal of money and effort on the basis of the contrary belief and that such expensive assumptions need periodic re-examination.

Counter arguments will not be examined herein. They are extensive and persuasive and are assumed in the remainder of the chapter. Readers who wish to examine this position are referred to a succinct digest of the counter arguments by Olson (1981).

The need for differentiated curricula is based, as already noted, on the almost universal conviction that gifted people do think in ways which are qualitatively different, or perhaps in ways which are so quantitatively accelerated that they constitute qualitative differentiation. Curriculum building then may proceed on the basis of: 1) the nature of giftedness and accepted educational objectives, and 2) the nature of the gifted as learners. Both will be considered, somewhat briefly as befits the purposes of this survey, in the remaining sections of this chapter. The first will be discussed in relation to the models used in Chapter II to explore the nature of giftedness, to which will be added Guilford's Structure of the Intellect (SOI) model. The second will consider the nature of the pressures gifted students put on their learning environment, with some further reference to learning modalities and brain hemispheric functions.

Models as Bases for Curriculum

Models, insofar as they explain giftedness, contribute also to curriculum prescription.

Terman. On the basis of Terman's model, the gifted are those with extremely high cognitive ability based on intelligence test measures. These measures were designed to assess ability to perform in an academic setting and were validated in large part on the basis of predicting academic success. Since then current curriculum was academic, no particular adjustment to its content was implied. The higher learning rates of the gifted suggested various strategies of acceleration as the appropriate adjustment.

Schuman-Torrance. In the Vancouver, Washington school system handbook, GCY: Linking Identification With Gifted Curriculum, Watters and Schuman (1980) described the students who were identified as gifted and then went on to a curriculum prescription.

Gifted students are described as both convergent and divergent thinkers; they seem to be unaffected by time restraints or open-ended tasks; they have high level thinking skills at integration and in academic areas; their feelings about themselves and others may tend to be introverted; they are intuitive, unorthodox and intellectual; they enjoy aloneness because of a very active imagination; and may tend toward social and artistic or theoretical occupations.

The curriculum prescription flows from student characteristics. Therefore, students should participate in a differentiated curriculum, continue in a regular class for most of the time, be placed in high or accelerated academic groups or classes, be encouraged to use their creative thinking skills whenever possible while in regular classes or at home, and be encouraged in brainstorming activities. Teachers should watch for signs of student boredom and meet them with assignments which include higher level thinking skills such as analysis, synthesis and evaluation and help students to integrate what they learn--compartmentalizing should be discouraged.

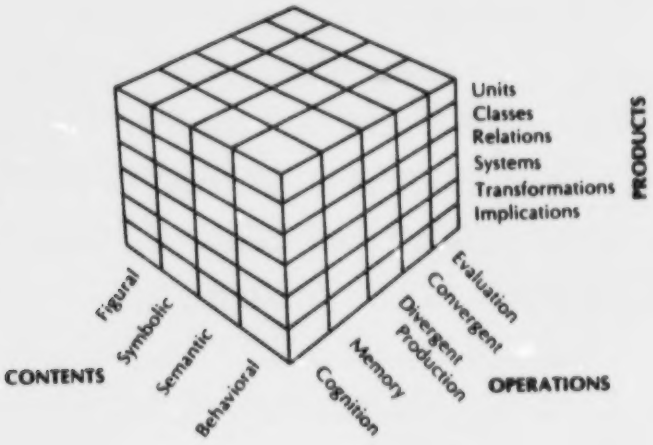
Schuman (1980), in an unpublished paper, proposes an integrative model of the various programs proffered as "gifted education." The paper describes a two process identification plan and a curriculum model to systematize the various educational programs commonly associated with gifted education. The paper addresses three aspects of curriculum construction: 1) educational approaches for the gifted and talented (enrichment, acceleration, talentization, integration), 2) curricular emphases (exploratory skills, process skills, expressive skills) and 3) learning environments (conventional classroom, extended classroom, resource room, magnet center, school within a school, gifted school). For the learning environments teacher roles and program examples are suggested.

Calvin Taylor. The "talents unlimited" model developed by Taylor (1978) proposes a program which will develop intellectual capabilities in each of six talent areas: 1) academic, 2) planning, 3) creativity, 4) deciding, 5) forecasting and 6) communicating. As much as anything else, Taylor's model is a reminder that there are intellectual skills, at least the six clusters, which need stimulation and educating. His model speaks, as do most others, to education in general. Its use in education for gifted students in the narrower 3% segment called gifted (rather than Taylor's "all kids are potentially gifted" concept) is for enrichment. Its use is geographically widespread and reportedly is relatively easy to use. A teacher has only to learn how to develop curricular activities in each of the six talent areas and then ensure that all six types of activities are used regularly and consistently. Two publications are suggested as being very useful for teachers wishing to explore curriculum building in this mode. The first by Stevenson et al. (1971) provides basic definitions and explanations of the six clusters together with sample activities and evaluation suggestions. The second is a large publication in looseleaf form by the Mobile Country Public Schools, Mobile, Alabama (1974). The publication, funded by a federal grant under the Elementary and Secondary School Act has three parts called Talent Activities Packet (TAP), Teachers in Training (T'n'T) and Criteria Referenced Tests.

Guilford, Structure of the Intellect (SOI). Although Guilford's (1967) model of the human intellect is well known, a diagram is included for convenience.

Figure 6.1

Theoretical Model for Guilford's "Structure of Intellect."



Guilford's model was developed by a process of factor analysis of many tests of ability and aptitude in the dimensions of contents, operations and products. This model greatly increased in theory the number of specific factors in human intelligence. Guilford identified a number of the 120 theoretical factors, and his work was elaborated by others including Torrance who developed measures of creativity. The most extensive elaboration is that by Mary Meeker (1969) who has increased to 90 or so the number of factors which can be measured. Meeker has used the model to develop a diagnostic system which can form the basis for curriculum prescription. Some differences between Guilford's model and Meeker's diagnostic system may be noted by comparing the model with the following chart which represents Meeker's three dimensions for diagnosis.

Abilities	Content	Levels of Complexity
Cognition	Figural	Units
Memory	Symbolic	Classes
Evaluation	Semantic	Relations
Problem Solving		Systems
		Transformations
		Implications

What Guilford calls "operations" Meeker calls "abilities." Meeker also omits the "behavioral" factor in the contents dimension. For Meeker "products" become "levels of complexity." The SOI Institute, established by Meeker, markets the tests and curriculum-related materials and even has a computer program for taking care of the assessment of data to diagnose student strengths and weaknesses and prescribe the appropriate curriculum. Developing materials such as these and making them available has been a service to education and to gifted education. The complexity of the intelligence construct has increased and new ways of thinking about it have been added. Clark (1979) warns that this " . . . model of intellectual abilities . . . at best only partially explains human functioning."

The Meeker model of student diagnosis and curriculum prescription has implications for individualizing the curriculum. It appears to be used as an adjunct to curriculum planning rather than as the complete program.

Renzulli. The three-factor basis of giftedness attributed to Joseph Renzulli (Chapter II) has provided a most important service by drawing attention to the personality dimension of giftedness. His revolving door model of curriculum delivery accommodates to some degree the third dimension of personal characteristics such as motivation and persistence. A student who is ready to engage in a Type III activity has developed an interest and a plan which presupposes an intent to persevere and carry out the plan. In combination the two models yield, if not a general curriculum prescription, a pragmatic determination of some elements of curriculum content for individual students.

New York State University (N.Y.S.U.). This model (Chapter II) is offered as an heuristic construct for the purpose of identifying gifted students having a wide variety of "gifts" and for developing additional definitions which are consistent and operational. It seems likely to fulfill these purposes; as the model is used to develop new definitions it will also become a framework for building curricula. As a pattern of exceptionalities becomes associated with a particular kind of giftedness, curriculum needs are clarified. As yet, however, the model is a framework whose stated use is to aid further study.

Learner Pressure

Taxonomies, Demands and Needs:

Bloom's (1956) taxonomy of educational objectives in the cognitive domain has long since become a standard checklist for kinds of curricular objectives in the cognitive domain. In educating gifted

students, the same taxonomy is in wide use with major emphasis being placed on the higher levels. Intellectually gifted students have differing cognitive attributes which have an impact on curriculum. They know a lot of facts, are flexible in their thought processes, have a capacity for seeing relationships and display originality, to cite only a few of the differences. These suggest earlier and greater emphasis on the analysis, synthesis and evaluative levels of the taxonomy.

Krathwohl et al. (1964) developed a taxonomy of objectives in the affective domain which is popular with educators. As in the cognitive domain, gifted students usually mature much more rapidly than their age peers in affective domain as well. Because they are comfortable with valuing systems, they are accepted and integrated by adults. The students expect much of themselves and others, especially their teachers and parents, and they will usually exhibit advanced (for their years) levels of moral judgment.

Jeanne Delp (1974) asserts that from her observations giftedness makes a number of demands on gifted individuals, that their behavior results from these demands and that there are curriculum implications stemming from the demands. A few of Delp's 26 demands will illustrate.

1. A craving for knowledge . . .
2. To seek an unusual or unique approach to assignments . . .
3. To question generalizations . . .
4. To concentrate, to become totally absorbed . . .

5. To be sensitive to honor and truth . . .
6. To resist routine [and] drill . . .
7. To be impatient with sloppy thinking . . .
8. To seek mental peers . . .
9. To have time for thinking . . . solitude . . .
10. To pursue a learning pace [fast or slow] of his own.

This sampling of demands bespeaks excellent resources for learning, that is, a flexible curriculum, teachers who are sympathetic and aware, contact with gifted peers and provision for individual learning approaches and modes.

Maslow's hierarchy of needs includes the need for self actualization in the higher levels. It appears that the frustration that many of the truly gifted experience with schools results from organized education's all-too-common obstruction of their self actualization. The school is not designed to meet this need.

Learning Modalities.

There are four learning modalities: visual, auditory, kinesthetic and tactile. Nearly every student, the gifted included, has a favored modality, and all children need to exercise several modes of learning. The gifted child needs extra encouragement to use a variety of modalities to enrich his/her environment and to prevent dysfunctional compensation. It has occasionally happened that a gifted child with a very superior memory and preference for auditory learning has failed to learn to read until later grades.

Brain Functioning

Increasing attention is being paid to two aspects of brain function, both of which affect curriculum for gifted students. First is the so-called triune brain and its effect in biasing learning. An understanding of this essentially chemical control of cortical functioning is leading to the development of new environments for learning. In these environments there is a conscious attempt to eliminate the overt or implicit threats which are currently used to reinforce rote learning. This type of learning, in which dramatic modification of the environment is made, is called "confluent education." In confluent education the lesson activities are designed to reduce threat and then to merge the learner's personal values with the cognitive material to be learned. Imagery, fantasy and imagination, valuing activities, futuristic-oriented activities, mind expanding "brain games," arts or movement are used in presenting curriculum materials. Though not widespread, modification of the educational environment in this way is claimed to vastly increase the rate of learning and to be of special relevance in educating the gifted. One large system, the Los Angeles City Schools, employs a confluent education consultant.

The second aspect of brain functioning, called brain hemispheric function, has its major impact on curriculum content and activities. Content and activities are designed to develop both the right and left hemispheric functions because both the linear/logical/sequential and the

holistic/metaphoric modes are necessary to effective development of higher order levels of creative and convergent thinking skills. Hence its particular relevance to the education of gifted students.

It is of some importance to note that all of the factors affecting curriculum noted in this chapter have relevance for the regular curriculum as well. They are, however, of special importance and require special emphasis in developing curricula for gifted students.

Chapter Summary

Curriculum building for educating gifted students has these basic premises:

1. A qualitatively differentiated curriculum is required.
2. The model of giftedness which is followed will shape the curriculum.
3. Special attention is paid to the upper levels of the taxonomies in the cognitive and affective (and perhaps psychmotor) domains.
4. Demands of giftedness, which place idiosyncratic pressures on curriculum, arise more from the nature of giftedness than from the conscious will of individual gifted children.
5. The higher level needs of the gifted appear earlier and more insistently.
6. An increasing awareness of both cortical and hemispheric aspects of brain functioning is increasingly influencing curriculum building and educational environments.

Implications

1. Since curriculum needs to be adapted to the special needs of the gifted learner, there should be adequate provision for teachers to learn the necessary curriculum building skills in both preservice and inservice settings.
2. While it is not necessary to expend large amounts of money to accommodate the gifted, school systems operating or planning special programs for the gifted should plan for adequate resource development to meet specific needs.
3. Since there can be a great amount of duplication of effort in curriculum building, Alberta Education should give consideration to ways of encouraging and supporting curriculum development, disseminating curriculum building information, assessing curriculum materials and providing relevant information to teachers.
4. Since research evidence is lacking, there is a need for universities and school districts to carry on studies that would either confirm or refute Robinson's claim that giftedness is merely precocity.

CHAPTER VII

CURRICULUM DEVELOPMENT AND DELIVERY SYSTEMS

Framework for Curriculum Building

Curriculum development for the gifted population has much in common with curriculum formation generally but there are additionally special challenges for the school district. Administrators and teachers must insure the inclusion of core knowledge and at the same time provide sufficient challenge to accommodate the special gifts of all learners. One must remember that these learners are at least as individually diverse as students in the normal population. Because of the prevalent precocity commonly exhibited by the gifted, curriculum developers must decide the skills to be developed or provided for and to what extent and how this is to be accomplished. Developing skills both in the cognitive and affective domains that will enable gifted students to be independent as learners, decision-makers, thinkers and communicators seems to be paramount. But is not this the goal for all children?

This question gives rise to a new challenge. How can we build justifiable curricula for gifted children that does not smack of elitism and does not deprive average learners of similar opportunities to develop? Fifteen English school inspectors note in their report (Department of Education and Science, 1977): "Gifted children are like other children in one important respect; they are individuals and should not

be thought of as a group, with common characteristics" (p. 41). These educators go on to say that we must think of particular aspects of giftedness rather than to attempt to provide for general giftedness.

Pressy's research (1955) on exceptional persons of recognized competence is rather interesting. He found that these people had all experienced one or more of the following:

1. excellent and early opportunity for abilities to emerge and to be encouraged by family and friends,
2. access to early and continuing guidance and instruction,
3. opportunity for regular and sustained guidance as well as for individual pacing,
4. participation in close association with other performers that formed the basis of a continuing stimulation, and
5. stimulation by frequent and increasingly strong success opportunities.

Pressy suggests that giftedness and talent are not just genetic or statistical concepts but rather deliberate consequences of a nurturing environment. On the basis of this study Pressy recommends that there be early opportunities for development of skills, continued individual guidance, sustained practice, association with competent persons and recognition in accordance with achievement.

There are several curriculum models in existence, all of which seem to incorporate elements of Pressy's recommendations (though they are not

necessarily built on his research or thought), with emphasis at some point on individual development. The curriculum builders all seek to make learning a challenge by using exciting, original and appropriate activities but each has been particularly careful to include a basic core of content and skill which is appropriate for all learners.

Renzulli (1977) proposes a model (a new version is somewhat modified) that is appropriate for a large high achievement segment of the student population because he feels that the curriculum should be enhanced for all students. He begins with general exploratory activities, using resource centers geared to student interests with materials broadly representative of the major fields of knowledge and intended to provoke curiosity and interest in further research. His next phase, called group training activities, is mainly concerned with classroom methods, materials and instructional techniques for developing feeling and thinking processes so that the child deals more effectively with content through high level thinking processes. The final phase is labelled individual and small group investigations of real problems. In this phase the child becomes an actual investigator of a real problem and is taught to use appropriate processes. The teacher facilitates the investigation by: (a) helping the student translate an area of general concern into a researchable project, (b) suggesting methodological techniques and (c) helping the student communicate the results. The whole process is seen as an approach to real-life problems and solutions.

Other models divide content into knowledge, skills and attitudes. Here there is an emphasis on concept building, decision making, creative problem solving and product output. It is recognized that students need to have knowledge of values, ethics, leadership skill and so on to reach appropriate decisions. While all students need to learn how to make proper decisions, the gifted are led to look at more far-ranging alternatives and implications, and to broaden, sharpen and even alter the original objectives through divergent thinking.

Programs for the talented or gifted in visual and performing arts or athletics also seem to note Pressy's research. Students are allowed to work with professionals but must also achieve in core academic areas. They are given an opportunity to perform in front of audiences and be recognized for their achievement.

The secondary level, more so than the elementary level, makes use of community resources such as public libraries, specialized libraries (including archives, university and government), private industries and knowledgeable people. Therefore we find mentorship programs where individuals are allowed to study with an expert in a field, such as a corporate president, an artisan. The selection of mentors takes many forms, such as volunteers who are subsequently assigned to an interested student or active search for a tutor by a student. Community workers, such as social workers, local artists and other performers, may aid students with various productions, thus helping to provide a feeling of success and an enthusiasm for independent study and learning.

Throughout the school districts visited, programs for the gifted had been developed but were often limited by available resources. In some districts there were opportunities for visual and performing arts but mostly the programs were academically oriented. Athletic programs to challenge the more capable were usually already in place and few saw any reason to give extra emphasis in this area.

During the course of the on-site visits for this report, several districts expressed concern about ensuring integration of gifted children with the normal population. While isolation was viewed as beneficial for meeting certain needs such as academic studies, it was also seen as detrimental in such areas as social development. Since these children will always be part of a society where there is a mixture of ability it was the opinion of many specialists that some activities should be designed to involve all children. This does not seem to be as much of a problem in schools offering pull-out programs as it does in special schools for the gifted or where there are full classrooms for the gifted within a normal school. Some schools encourage integration by providing special opportunities for the gifted to be in school productions such as plays, operettas or choruses. Others encourage participation in student government and athletic teams. Some schools, while offering almost all separate courses for the gifted, require physical education and health to be taken in an integrated setting with other children of a similar age. As one teacher pointed out, "These children are special but they must learn to appreciate that others make special contributions also."

Curriculum Delivery

Approximately ten different types of readily observable delivery systems or groupings are used by the numerous districts offering programs for the gifted. Each district makes its own modifications to suit needs and resources but the basic types are quite distinguishable. Some districts have employed more than one system and in some cases two or more small rural districts have pooled their resources to offer programs. In looking at a state-wide picture of multiple districts, such as in Minnesota, it was possible to see all of these delivery systems operating. Some were isolated within a school and others were cooperatively sponsored between schools or school districts, or even for the entire state.

Methods of Curriculum Delivery

Early Admission. In this approach children are allowed to enter the school system prior to the specified chronological age. The research results are quite positive since it seems that at this stage mental age allows the children to find more commonality with developed traits than does chronological age. Few examples of this type of delivery were observed, however, since few districts are concerned about identification until after grade one and most not until grade three.

Acceleration. Students can accelerate either by "skipping" a grade (seldom recommended) or by moving through the content of the grade levels at an accelerated pace. There are ungraded primary schools which allow the student to progress at his/her own pace. There are high schools which allow students to take extra loads and finish more quickly. The bottleneck appears to be at the middle grades or junior high schools where students are seldom allowed to accelerate their program because of stringent administrative policies.

Under an acceleration approach, students are seldom offered anything beyond the normal curriculum but are permitted to progress through the content more quickly. Very few children are offered any guidance in thinking skills, values, appreciation, and creative ways to approach problems outside of what would be given to every student in the normal curriculum. Acceleration is generally reserved for the academic subjects only.

Enrichment. Enrichment is seen as the domain of every teacher in every classroom but is especially emphasized for gifted students. In this system children are given extra or different materials from the regular curriculum and in some cases are guided toward special projects of interest. Much enrichment can be done for everyone in the classroom one example being special field trips. However, at times a few selected students in a class will be clustered together for an enrichment project.

Pull-out. A more concentrated form of enrichment is the school pull-out or district pull-out where selected students go to a special room or school for enrichment. This could be done at regularly scheduled times of a day or week, for one period, or for half-days and in some cases full days, depending upon the situation. One teacher is designated to teach the gifted as a part of her/his load or as a full load. Normally the teacher stays in one school and the children travel to that location.

The pull-out system has implications for storing materials and transporting students. When materials can be housed in one location it is more efficient for the instructor. However, transportation within a district can be a problem since children sometimes must be bussed from one side of the city or county to another. The Halton district of Ontario (and several other districts also) have developed the concept of family schools. Here a cluster of schools in close proximity ban together for pull-out programs, and children can walk to these schools for a half-day's instruction. In North Dakota a similar system prevails but school districts cooperate and children are bussed up to thirty miles one day per week to receive special instruction.

Special Classes and Special Schools. A special class or classes for the gifted can be set up within a regular school or one school within a district can be designated to offer only programs for the gifted. The curriculum for successive levels is more controlled in these situations but there is still great latitude for each student to explore areas of individual interest.

Special schools such as the School for the Arts, Science and Humanities in Seattle or the school for Arts and Athletics in North York are specialized types in this category. In such schools professionals are employed to work closely with the students and great care is taken to have the product and/or performance displayed before an appreciative audience.

Itinerant Teachers. In this system one or more teachers are designated to travel to the schools to offer programs for the gifted. These teachers often go to several schools where they meet with groups for periods of time ranging from one period a week to two days per week. An extremely large number of management combinations can be accommodated under this system.

Teachers often find this system demanding in terms of energy and preparation. It seems that there are never enough materials and what is needed is "always" at another school. However, children seem to be satisfied with this approach.

Special Summer Programs. These programs are especially popular for large districts or for a conglomerate of districts where the gifted are invited to a special week-long (or longer) camp in a designated location. At this camp students are guided by qualified instructors in such areas as arts experiences, athletics and traditional academic subjects. Emphasis is on achievement in an informal setting with different

materials, techniques and activities than would normally be encountered in the school system.

Advanced Placement. Under this arrangement universities and colleges give advanced standing to students who take specifically approved courses at the high school. Students can thus complete their high school requirements and at the same time qualify for university or college credit by taking extra courses.

Once again students are seldom given special guidance on thinking, communication or other areas thought important in achieving academic success. Students, in essence, accelerate their progress through the school system, including post-secondary institutions.

Independent Study. Gifted students who have a definite area of interest are often encouraged to explore this area in more depth through independent work. Teachers monitor progress and provide guidance. This experience can be of great benefit providing the student has adequate prerequisite skills to carry out the study and the teacher is sufficiently caring and knowledgeable to give appropriate assistance.

Seminars. Mini-courses (of a type) developed especially for gifted students are often held on a Saturday or an evening where identified and acceptable students meet to discuss topics of concern, do research or learn a specific skill. Sometimes parents are invited to attend and engage in discussion or participate in cooperative efforts with the gifted students. This is not much different from special interest

classes conducted by a community organization, college or private enterprise for children and adults. Students attend on a voluntary basis and are sometimes charged a nominal fee, but usually costs are part of the school operating budget.

This type of program has been quite successful; its main limitations seem to be time, location and resources, including the teacher.

Community Sponsors or Tutors. Often called a mentorship approach, this is an enrichment endeavor combined with independent study where the whole community becomes the domain for learning. Sometimes volunteers are solicited from the community and placed on a list for students to choose from while at other times the student is aided to identify his/her own mentor. This approach has proven very successful as experts, recognized leaders and craftsmen have become the personal resource and tutor for the gifted student. It is in a sense an individualized apprenticeship program. The area of main concern with this approach is one of grading the learning and finding adequate sponsors to meet student needs.

All of the above approaches are viable. The appropriate selection depends upon the resources of the school district and the objectives to be accomplished by a gifted program. Some lend themselves well to a structured curriculum while others are much more open-ended. To evaluate one over another depends upon the intended outcomes of learning for the gifted.

Gallagher et al. (1982) conducted a survey in the United States to determine the most popular program strategies. They reported that the ". . . resource room which combines the special content presented by a specially trained teacher, with experience in the heterogeneous regular classroom" (p. 15) was the most popular. This was followed by the special class which included only gifted children, and third was the teacher consultant strategy where differentiated instruction occurred in the regular classroom (with the regular teacher) aided by trained consultants. However, this section of the report concludes by stating, "Despite the generally positive feelings about resource rooms, there were many comments which suggested reservations with that approach."

It should be noted that many of the methods of curriculum delivery discussed here would be more applicable to the elementary or junior grades. Senior high schools have tended to regard their diverse curricular, co-curricular and extra-curricular offerings, combined with private study, as adequate provision for the needs of the gifted student. The International Baccalaureate program has been viewed by some as providing for the gifted; there are others however, who believe this program serves high academic achievers who may or may not be gifted. In general proposals for curriculum delivery have not specifically focused on the senior high school.

Chapter Summary

Most programs for the gifted use one or more or a combination of approximately ten methods of curriculum delivery, with minor modifications to suit local needs and resources. These methods are:

1. early admission,
2. acceleration,
3. enrichment,
4. pull-out,
5. special classes and special schools,
6. itinerant teachers,
7. special summer programs,
8. advanced placement,
9. independent study, and
10. community sponsors or tutors (mentorship).

Whichever methods of curriculum delivery are chosen, it is important to remember that 1) a nurturing environment has been found to be a major part of realizing potential giftedness, and 2) there is a need to ensure integration of the gifted with normal students.

Implications

Since there are numerous ways to organize for and deliver curriculum, systems should carefully plan to meet the immediate and long-term goals and objectives of their locally developed programs.

CHAPTER VIII

TEACHER AND SUPPORT SYSTEMS

> The teacher of the gifted seems to be required to have every human virtue save economic sense, because, if he possessed that also, he certainly would not be found in education.
>
> James Gallagher
> (as reported by Marvin Gold)

It seems as though there has been controversy forever over whether teachers are born with the necessary characteristics to promote learning or whether one can learn to be a teacher. Teacher training institutions exist because the public accepts the latter, and these institutions engage in continual study to determine what teacher characteristics best stimulate learning. This study process is always magnified and the controversy heightened when there is need for teachers for a special group of learners. Seeking teachers of the gifted is no exception. But according to a publication from the Georgia Department of Education (Nix, 1976), "As it now stands, there is no clear, research-supported explanation of the special teaching acts and/or teacher characteristics that achieve learning among gifted children" (p. 25). With this in mind, the authors will proceed to discuss current thinking and practice with respect to selecting and educating teachers for gifted children. Teaching is loosely defined as setting up conditions that stimulate learning. This generally means that one must provide instruction to the learner, give guidance and feedback while the learner makes initial application of the knowledge acquired, and then provide an opportunity

for the learner to execute knowledge and skills in new (to the learner) situations. There is need for evaluation and feedback at every stage of the learning process, and many individuals will perform this function, both in the school and outside of it. However, at some point the learner himself must become the evaluator, basing his/her judgment on some set of acceptable criteria.

The complex teaching-learning process must take into account characteristics and styles of both teacher and learner. To list specific characteristics of the teacher without having considered the characteristics of the learner seems futile.

This chapter begins, therefore, with a review of the characteristics of the gifted learner, as stated earlier in Chapter V.

Learner Characteristics

Characteristics of gifted learners are varied. While one can generalize about them as a group, each individual will be unique. The following characteristics are extrapolated from several sources but initially all were derived by observing children thought to be gifted in some way. The following is not intended to be a complete list, but a guide so that educators can better understand the gifted.

Cognitive

The ability of the gifted to receive, categorize and use information in a variety of ways employing the processes of analysis, synthesis and evolution is readily observed. Gifted children usually absorb an extraordinary quantity of information and have unusual retentiveness. Their powers of observation, spurred by extraordinary curiosity and varied interests, are often noticeable at an early age. There is often evidence of the ability to process information quickly with a flexibility that produces new and peculiar solutions, diverse and unusual relationships, original ideas and numerous alternatives. These children are usually quite verbal, having a high level of language facility and a desire to read well beyond the level of interest for their age group. They are not easily satisfied with regular answers and will persist in goal pursuit and inquiry even to the point of being classified as stubborn and uncooperative.

Affective

Development in the affective domain seems to be earlier than normal and usually more intense. There is usually an early appearance of social conscience and moral judgment. Yet there is a keen awareness of, and uncommon sensitivity to, the expectations and feelings of others. Gifted children are often extraordinarily idealistic and easily upset when people do not follow the "rules" since they have a strong need for consistency between values and actions. The high expectations of self coupled with emotional depth and intensity may lead to cynicism which frequently causes these children to be isolated from their peers and even from adults.

Psychomotor

The gifted need psychomotor skills to go with their mental capacity but this area develops more slowly. While they may be slightly ahead of the normal development pattern, they are often frustrated because they are unable to perform physically the tasks they can conceive mentally.

Independence

Gifted children are often independent in nature even though they are friendly and outgoing. They may prefer to study and work individually because they develop a self-reliance and desire for freedom of movement. They also come to realize that in their judgment others do not perform tasks as satisfactorily; thus they prefer to go their separate ways. The gifted soon realize that they are different.

Energy

One characteristic that seems to stand out among the gifted is their high energy levels, which often lead them to put in more productive time on a project and give intense voluntary effort beyond the normal.

The varied and accentuated characteristics noted above are not always appreciated by peers and adults. In fact numerous problems result from having gifted children in regular classrooms because of the misunderstandings which may be generated. The gifted child may become bored and impatient, even "sassy" and overtly critical, when required to wade through a curriculum he/she already knows or when required to wait

for slower students to "catch on". The child may be perceived as a "smart alec" or a "show off" when he/she dominates the discussion, uses sophisticated terminology and provides exceptional insights or recognizes rare relationships. These children can also be perceived as stubborn, unrealistic, socially maladjusted, intolerant, deviant and troublesome. Yet to the teacher who is sensitive to the needs of the gifted, these same children may be creative, idealistic, intellectually superior, enjoyable and stimulating.

Teacher Characteristics

Teacher selection is probably the most important decision to be made when establishing programs for the gifted. While we realize the importance of the decision, unfortunately there is no consensus as to what characteristics which the teacher must possess. Some districts want a brilliant and creative teacher who can keep ahead of the students. Others want the wise who have gained insight and understanding through their varied teaching experience, while others seek the person who can philosophize and propose ethereal problems. Some teachers are chosen because they have counselling skills, and some because they can be a friend. Shirley McNary (1967) concluded that no single teacher characteristic was significantly related to all areas of convergent and divergent growth for upper elementary grade children having an IQ of 120 and above. However, certain characteristics are stated as preferable when gifted children and supervisors of programs for the gifted are consulted.

Research Studies

Numerous research studies have been conducted with the purpose of identifying the most desirable characteristics of teachers of the gifted. Of these, only two will be reported.

Bishop (1966) found that intellectually gifted high school students identified the following characteristics in successful teachers: 1) intellectual superiority, 2) personal interests and activities that lean toward the intellectual, 3) evidence of high achievement in past scholastic endeavors, 4) thorough command of subject matter, 5) sensitivity to others, 6) acceptance of superior students, 7) responsible, stimulating, imaginative, businesslike and systematic in their teaching procedures, 8) ability to communicate effectively with students and 9) personal interest in students.

Walker and Bruch, as reported by Gowan and Bruch (1979), found that student creativity was highly related to teacher creativity, aspirational level, intellectual climate and student morale as fostered by the teacher through student-teacher interaction. These same authors (Gowan and Bruch), after studying 350 gifted children in 13 classes, concluded that teachers of the gifted need abundant energy, self-confidence, a warm, out-going personality, intelligence and patient behavior, and they need to be non-threatening to the students.

Expert Opinion

Many experienced consultants in education for the gifted have provided characteristics which they have deemed important. These conclusions have been reached both through research and through intuition and experience.

Gold (1974) says that teachers of the gifted must possess an extraordinary ability level and ego-strength which cannot be taught through preservice or inservice sessions. Torrance and Myers (1973) believe the following teacher characteristics to be important: 1) enjoys being with young people, 2) thinks all of his pupils are important, 3) is eager to help the student who needs it, 4) admits his/her own mistakes and 5) trusts the pupils.

Clark (1979) identified four basic characteristics of effective teachers for the gifted:

1. The teacher has a general frame of reference which emphasizes concern for people rather than things, emphasizes meaning, authenticity and causation, and is concerned with the phenomenological rather than the behavioristic.
2. The teacher has a tendency to perceive other people as able, worthy, friendly, dependable, helpful and internally motivated.
3. The teacher generally perceives himself as able, dependable, wanted, worthy and a part of the group.
4. The teacher is disposed to perceive the teaching task as involving the student, therefore encouraging process and progress in a more free atmosphere.

The opinions of other specialists interviewed support these statements and conclude that teachers of the gifted must be spontaneous, supportive, interested in developing student potential, energetic, accepting of all students regardless of peculiarities, interested in student success while maintaining the self-worth of every child, flexible and open to new ideas, openly enthusiastic about learning and committed to excellence.

Teacher Selection Practices

Notwithstanding all that has been said about the desirable characteristics of teachers of the gifted, practicality often dictates differently. When school districts establish programs for the gifted it is not unusual for them to select teachers from their existing staff. In doing so they have often been obliged to select teachers on the basis of availability. For example, they may use a counsellor, principal, part-time teacher, and so forth. This practice does not always create the optimum conditions for success, and more stringent screening is recommended.

Whether districts select their teachers internally or advertise externally, the characteristics noted in this report may be a useful guide. In one district visited, the teachers were selected from the pool of applicants through a rigorous set of procedures. These teachers were put into groups and given a special problem to solve while being

observed. Only those who emerged as leaders and those proposing the most creative solutions were chosen for further interviewing by a panel. The final selection was made on the basis of some of the criteria previously cited.

Teacher selection needs to be based upon program organization and goals. In some cases the teachers travel to the schools, in others they become one member of staff in a school for the gifted, another district may be offering pull-out programs only, yet another may have separate classes for the gifted within a regular school setting, and another may be offering mentorships and special weekend classes. The program demands are all different and require a different mix of teacher characteristics. One district not only interviewed the prospective teacher, but his/her family as well, to make sure there was adequate support because of the extra time and travelling demands of the position. While there are ideal characteristics, sometimes one must try to select the best and depend on inservice for the rest.

Training Teachers for the Gifted

Many specialists believe that, while some characteristics come with the teacher, many can be developed. Teachers of the gifted definitely need special skills and knowledge in order to provide the necessary assistance and establish a learning environment conducive to developing the students' potential. (This is not to say that these same characteristics would not also help all children to realize their full potential.) However it is our claim that many teachers will not learn

these necessary skills, nor desire to do so, unless they themselves see the reason, have a vision of the goal and aspire to succeed.

Supervisors of Teachers

Leta S. Hollingworth (1939), who worked closely with Terman, said, "The times cry out for leaders to guide the people safely in a world where, without vision, more people will perish in more different ways than ever perished before" (p. 575). Unless the supervisors of gifted programs, including provincial and local personnel (who are leaders in their own right), catch a vision of the possibilities for educating the gifted there will not be adequate training for teachers, and the gifted may well be thwarted in making significant contributions recognizable by themselves and society. One wonders how many have perished and how many must yet perish?

Supervisors of teachers at the local level are usually charged with the responsibility of providing adequate inservice programs. These sessions are of little value unless they promote continued development on the part of the teacher. They must deal with the theoretical aspects of learning for the gifted as well as providing some specific examples. According to one curriculum supervisor, these sessions too often degenerate into a sharing of "cutesy" products or exercises, rather than focusing on those processes and activities which challenge gifted learners. Unless the supervisors accept responsibility for ensuring quality inservice sessions which focus on the needs of gifted children, the sessions will likely deal with curriculum appropriate for all learners.

Quality Inservice and Workshop Sessions

Inservice sessions should promote unique possibilities for the gifted which allow for the development of thinking and creativity in the child as well as the teacher. There is a place for theoretical activities which include the basic principles, models and theories pertaining to the gifted and which act as a springboard to further study. Demonstrations with children have proven to be fundamental in illustrating the application of principles. This method, more than any other, has resulted in carry-over to classroom practice. The use of film and videotape extracts of exemplary teaching situations have also proven successful since it allows trainees to capture the message in shorter periods of time.

There is a need to provide information to the participants about every phase of the curriculum building process. Teachers need to focus on goals and objectives to gain a vision of the destination. They then can be given some examples of routes to travel, methods most appropriate to the terrain and ways to evaluate whether they have reached the terminus.

Written materials, while essential to the sessions, should not be voluminous. A careful selection of appropriate authors, catalogues and forms distributed sparingly at each session over a prolonged period of time seems to have been the most successful way of encouraging most teachers toward independent study. Helping teachers discriminate between the useful and the "junk" according to their purposes, is essential.

Too often teachers have attended conferences and collected publishers' materials only to find the materials are inappropriate. Most teachers interviewed for this study emphasized the need to adapt ideas rather than adopt ideas. They found that few curriculum materials could be used in their original form but required reworking and modification to suit their own teaching style and situation. These comments have led the project authors to believe that a set curriculum for all gifted, laid out in detail, would be ineffective and an unwise investment.

Conference Attendence

Most districts have found it useful to send their teachers of the gifted to local, national and international conferences. While it may be a phenomenon of beginning a new program, almost all districts had appropriated funds to enable their teachers to attend such conferences at district expense. Returning teachers bring new ideas, contacts and curriculum materials that can be shared. But the benefits of such conferences may not always be readily apparent. There are many hidden benefits such as teachers being able to see that they are not alone in their special endeavor. This alone can breed an infectious enthusiasm in a school district, especially a somewhat isolated one.

Inservice Models

Districts have been quite innovative in the way they have offered inservice to teachers. They have provided summer institutes where the participants come on a district-sponsored basis or by their own

voluntary contribution. There have been district-sponsored conferences during the day and/or conferences sponsored by a consortium of districts. There have been workshop sessions, class visitations and interdistrict visitations. Sometimes teachers travel several miles to a central location to attend a one-day session at the district office while at other times the sessions convene immediately after school or during the evening. One interesting characteristic of teachers of the gifted was their willingness to devote extra time for preparation and sharing without any remuneration. Most of these teachers accepted inservice as a challenge and a necessary part of their teaching commitment.

University Courses

Universities have been slow to institute courses for teachers of the gifted. Only a few universities in the United States have well developed graduate studies programs as well as undergraduate courses. California, having had an emphasis on the gifted for at least twenty years, seems to offer the greatest variety of programming when all of their post secondary teacher training institutions are considered. States like Connecticut, Indiana, New York and Georgia, where active specialists at the university level are doing research and writing, tend to have fully functioning programs also.

However, most institutions have had a tendency to cover the needs of the gifted in programs labelled "Special Education". Because more money has been directed toward learning disabilities, needs of the gifted have

been concealed and usually given some minor coverage in a course directed at needs of special learners. Only in the last two to three years have universities begun to address the specific needs of the gifted.

University programs need to integrate both theoretical structures and practical experiences. The tendency is toward the theoretical where instructors emphasize cognitive models such as Guilford's SOI, Bloom's Taxonomy and Piaget's stages of development, not unlike what would be offered to regular psychology classes. There is some attempt to deal with the affective domain but this too is often weak and does not meet the specific needs of the gifted. Students who have had the opportunity to combine the theories of cognition, identification and behavioral characteristics of the gifted with instructional methodology and then have a practicum in a school classroom with gifted children seem to derive the greatest benefit from their university experience. This is to be expected since it is borne out in a similar way in other specialist programs.

Canadian universities have been slow to offer courses for teachers of the gifted. A few offer one course devoted to educating the gifted but most incorporate the offering in a course devoted to special education where the emphasis is on the opposite end of the continuum. McGill University seems to have the best developed program at present but some other universities are making plans. Monetary contraints are having their effect of course, and a few universities are not intending to mount programs in this field.

Support Personnel

Programs for the gifted cannot begin or survive without the support of administrators, regular classroom teachers, counsellors, psychologists, resource specialists and parents. Since each of these groups has a significant part to play in the education of gifted children, measures must be taken to insure their involvement in and commitment to a program for gifted students. Inservice programs, for example, are essential for all support personnel as well as for those teachers who are directly involved.

Administrative Personnel

When one asks the question, "How did your program begin?", the answer usually centers on someone in an administrative role. In one district a member of the school board was sufficiently influential to make her concerns about the gifted result in district-wide programs. In another district it was the assistant superintendent who listened to concerned teachers and parents and made his own observations that led to investigation, pilot projects and program implementation. In another district it was a school principal sensitive to his staff who promoted a study on how to help the creative and challenge the academically gifted. In all districts visited, little if anything would have been accomplished had not some administrator been willing to listen and initiate action to meet the needs of the gifted. The involvement of administrative personnel to support program initiation and advocate program maintenance is vital.

Classroom Teachers

We do not intend to diminish the important role of the other classroom teachers by including them under the category of "Support Personnel" but to show that a number of people are involved in a program, where the key person is the gifted child. In most systems the regular classroom teachers can make or break the program. If these individuals do not fully understand the design--its goals or intents, its organizational structure and the curriculum--they are often threatened and refrain from recommending appropriate candidates for consideration. While accommodating the gifted includes enrichment activities to be conducted by the regular classroom teacher there must be communication about the expectations as well as inservice help on curriculum development. Pull-out programs must also have the cooperation of the regular classroom teacher since he/she could require inordinate amounts of make-up assignments to be completed in lieu of class time missed. In some cases, where the teacher of the gifted was viewed as being "arrogant" or having "superior students" and thus a "cinchy" job, there was contention and disregard for the special program by staff and even by students. It should be evident that great care must be taken to communicate with the classroom teacher and gain his/her confidence and cooperation if success is to be assured.

Psychologists

These specialists are instrumental in helping with student identification. They assist in selection procedures and test interpretation. They often are asked to advise on special cases. In some districts they develop into the resident expert on the identification team. One needs to be careful however that test instruments do not become the sole identification criterion,thus leaving out the opinion of parents, peers and classroom teachers.

Counsellor

Many districts which have not included the counsellor in their plans, whether inadvertently or by conscious choice, have had detrimental results. The gifted students often suffer much trauma because they are different and unaccepted by the peer group. The gifted student is often at high risk--maybe extra sensitive and highly susceptible to adult and peer opinion--and needs the special attention which only a counsellor who understands the unique characteristics can provide. Counsellors can help gifted children understand themselves, and help them relate to their specific gifts and the opportunity they have to make contributions in exceptional ways. One district found that group counselling with a class of gifted students increased productivity and decreased animosity. Another district found that a counsellor working with teachers increased the likelihood of student and program success. Counsellors should be included in the team of support personnel who assist in the "community of communication".

Resource Specialists

Many districts have appointed a program specialist(s) or coordinator for the gifted while other districts have chosen to incorporate these duties into the existing structure. The program specialist may be called upon to conduct inservice sessions, visit classrooms, aid in student selection, provide resource curriculum materials, assist with special projects, assist in teacher and student selection and on and on. Some districts have set up an entire staff to aid teachers of the gifted while other districts have appointed one of the teachers to carry the duties on a part-time basis. The needs of every district are different but it was observed that program quality was enhanced when there were resource specialists and a coordinator specifically designated who could give assistance to the teacher.

Parents

Parents, although not staff, are vital supporters who can wield a great influence. At times parents have been the energy which has powered programs for the gifted. Without their bouyant enthusiasm or irrepressible desire to see their children succeed, programs for the gifted would have been halted by apathy.

Parents have acted as chauffeurs, mentors, counsellors, classroom helpers, librarians, carpenters, attitude builders and teachers. Clark (1979) says, "...parents and home play a significant part in every phase of a child's growth and influence the outcome of every educational decision" (p. 348). There is no doubt that the powerful effects of

motivation, self-image and attitudes toward self and others have their beginning and definition in the home. It is essential that school districts communicate regularly with the home and even offer special inservice sessions to parents.

Helping parents organize, become knowledgeable and lend cooperative support to establishing programs for the gifted may be the only way to survive. As stated elsewhere in the report, some states mandate that parents be involved in every committee before funds will be released. Parents should be instructed on the nature of giftedness, social and emotional development of the gifted, program alternatives, how the home can be an effective teacher and how they can assist as community members in promoting legislation. Assisting parents may follow the theme, "United we have; divided we don't".

Chapter Summary

Characteristics of ideal teachers and support personnel have been suggested. Although teacher selection is clearly important, studies have not shown conclusively what characteristics a teacher of the gifted should have. Teacher selection is limited further by practical considerations such as who is available. The type of teacher chosen would also vary according to the type of program offered.

If programs for the gifted are to succeed, support personnel and the regular teaching staff must also be involved in and committed to the programs. Parents, although not staff, have a key support role and should not be overlooked.

The most effective method for increasing the contributions of both teachers and support personnel is to provide inservice sessions of good quality. Teachers - who probably have not taken courses on the gifted, since few exist -- need theoretical demonstrations of process and training in curriculum building. Inservice for support personnel should promote understanding of the program's selection processes and its goals, content and instructional techniques.

Implications

1. Since teacher selection is vital to program prosperity, school districts should do all within their power to procure the names of those who are interested in and qualified to teach the gifted and then carefully select from the pool of applicants.
2. Since teacher training is important, universities should be encouraged to offer special courses to foster awareness of the gifted, provide preservice instruction and provide an avenue for advanced study.
3. Since inservice has proven vital to teachers of the gifted and requires well-planned and financially supported programs, school districts must build inservice sessions into the program framework. Orientation sessions are advisable for <u>all</u> teachers so as to achieve maximum cooperation and reduce misunderstanding.
4. Since teachers of the gifted find it difficult to operate in isolation, support personnel, especially counsellors for the gifted student, should be given ample consideration in the planning.

5. Since many American districts and states found parental support to be paramount, encouragement should be given to including parental involvement at both local and provincial levels. The potential of the gifted can best be developed through cooperation between school and home.

CHAPTER IX

ADMINISTRATION AND FINANCE

Because special programs for educating gifted students are relatively recent, it was possible to gain some information both about the origins of these programs and their continuing operation. Much of the information is from the United States where programs are more numerous and more of them are past the initial stages; in Canada programs are younger and fewer. Differences between the two countries in terms of administrative practices and fiscal arrangements are such that adapting procedures from elsewhere for use in an Alberta setting would require careful thought. Differences are noted first, after which the chapter considers conditions conducive to program initiation, administrative initiatory steps, fiscal requirements and sources of funding and then concludes with a set of implications.

Administrative Differences Between Canada and the United States

A Canadian educator visiting the United States finds a number of differences in structures, processes and roles. The major significant differences in relation to educating gifted students are:

1. Local systems in the United States are directly affected by three levels of government: district, state and federal. In 1971 (Marland) the United States Office of Education (USOE) assumed a leadership role to confirm and maintain provisions for the gifted and talented as a national priority, and to encourage the states to include this

priority in their own planning. Action taken to achieve this purpose included establishing a professional cadre in Washington and in each of the ten federal regional offices, gathering and disseminating information, providing leadership training, assisting states to access federal funds, supporting research, encouraging employer-based career education for the gifted, and other supporting activities (pp. xii-xiii). The effects of these and subsequent actions by the USOE are very considerable and they are felt in every state. The results of the current dismantling of the federal and regional offices for gifted education, however, remain to be seen.

In Canada the federal government has practically no direct effect on elementary and secondary education. There is no Canadian equivalent of the USA Elementary and Secondary Education Act (ESEA) of 1965, or of its subsequent amendments which provide for general support of education and also specifically affect education of gifted students in ways already noted in this and preceding chapters.

The states do have a major responsibility for education (as do the provinces in Canada) but they also must serve school systems as "brokers" of the services and finances from the federal government. In Canada, residual jurisdiction and constitutional provisions give the responsibility for K-12 education to the provinces. Special education provision for gifted students is mandated only in Ontario (by 1985) although individual school systems in all provinces may use general grants for this purpose. British Columbia has a

provincial coordinator for gifted education and the Ministry of Education has published an Enrichment and Gifted Education Resource Book (1982). Little else of a formal nature specific to educating gifted students is in place in provincial departments of education.

Most states now have, and have had for several years, a state coordinator of education for the gifted, and many have additional professional consultants and other support staff. Most have many publications for use by local education authorities and teachers.

Local boards in the United States control education in the district, subject to federal and state guidelines and directives. In Canada there are no federal guidelines.

2. Inclusion of lay members of the community in local advisory committees is much more extensive in the United States than in Canada. Even more surprising is the involvement of lay people in many working committees on such matters as selection, program development, program delivery systems and evaluation.
3. Superintendents in the United States appear to be more involved in detailed budgetary matters, and principals are more directly in control of, and responsible for, school budgets. In Alberta there usually is little if any discretionary budget at the school level. However, with school-based budgeting in a few districts there could be a change.
4. In the United States inservice education, except for consultant services from the state, appears to be much more completely the

responsibility of the Local Education Agency (LEA), which is similar to our school district, than is the case in Canada. Teacher organizations in Canada play a much more active role in inservice.

5. Direct involvement of parents and other lay persons in providing programs for gifted students is greater in the United States.
6. Parental involvement in volunteer groups is more extensive in the United States than in Canada.
7. More complex funding arrangements are common in the United States. The LEAs derive money from federal, state and local taxes. The funds from all these levels may be categorical, blocked or general. General funds may be used to provide educational services with no other restrictions on their use. Blocked funds may be used for any or all of a specified group of uses; for example, funds for programs for gifted students are now frequently "blocked" with funds for the handicapped, disabled and disadvantaged. Categorical funds may be used for only one specific purpose such as programs for gifted students. A local levy is usually a categorical fund which may have to be voted on periodically, even as often as yearly. In addition there are other federal and state sources which may be accessed upon special application. It is not unusual for programs which require pupil transportation to be paid for from desegregation grants. Program support for each LEA may thus depend on some configuration of three kinds of funds from each of three levels of government, with some additional possible sources such as private donations.

In contrast, a school system in Alberta would depend primarily upon general grants and transportation grants from the province, supplemented by local taxes. Additional funds may also be obtained by application from other provincial sources such as the Educational Opportunities Fund (EOF).

8. Differences in funding levels are hard to identify. The great variation in funding levels in the United States, exchange rates between the two countries, and differences in costs of service as well as the multiplicity of sources of funds in the United States make reliable data hard to get and comparisons tenuous. A cautious conclusion is that the extra per pupil cost in equivalent dollars is higher in Canada. If this conclusion is correct, the probable reason is that most Canadian programs are still in the more costly developmental stages.

The most reliable information from the United States appears to be that given in The Report on Education of Gifted, Volume 1, for the Advisory Panel of the US Office of Gifted and Talented by Gallagher, Weiss, Oglesby and Thomas (1982). This report gives the range of extra per pupil costs to LEAs as 15 to 45% of the regular per pupil costs. In the year 1980-81, states provided additional assistance varying from $0 to $1364 per pupil. Total state funds provided in that year amounted to $148,470,000 serving 913,775 gifted pupils (of an estimated 1,626,000) at an average of $163 per pupil. The total number of students served is likely higher because some LEAs operate programs without state assistance. Federal funding has been

estimated at about 10% of the total. Thirty-two of the thirty-four states reporting received some funds from other than education tax sources. One such source, the state Commission for the Arts, provided some portion of the support for "artists in the schools" programs. In California the state commission provided 40% of such costs.

For the 1982-83 year the federal incentives have been abandoned and states have removed the categorical designation while restricting increases in dollar amounts of grants, which in effect reduces the total real support to schools when inflation is taken into account. The main result of this action has been that the LEAs are attempting to finance education for the gifted as part of the "baseline" funding for regular programs, are seeking money elsewhere and are using other facilities. The well established programs in Seattle, for example, are so organized that they do not require staff "extra" to the normal complement and, since the extra hardware and software have already been acquired, very little funding above the baseline grant is now required. In Seattle, also, desegregation funds provide some of the extra transportation required. Washington state has a separately funded state institution called the Centrum which provides special, short-term workshops for special groups in the visual and performing arts somewhat similar to Alberta's Banff School of Fine Arts, but serving students from the upper elementary through high school grades. What, if anything, will replace federal incentives in research and development is not yet clear.

9. The current recession, although neither an administrative nor fiscal difference, has differential effects which should be noted. It has come at a time when many programs in the United States are already established, and thus the initial, heavier expenditure stages are past. Although the fiscal restraints are severe and some programs will wither, many -- probably most -- will survive because money requirements have decreased and local demand for the programs has increased. The effect of recession on development of programs for gifted students in Canada is yet to be seen.
10. More extensive provisions for teacher preservice education exist in the United States than in Canada. Even so, teachers specifically prepared to teach gifted students are scarce in both countries. Teacher preparation institutions in Canada are only beginning to develop suitable programs. The two essential deficiencies in regular teacher preparation programs are: a) specific preparation in understanding and teaching the various kinds of gifted students, and b) preparation for curriculum building. Teachers of the gifted universally complain that there are no satisfactory curricula or curriculum materials available to them. Nearly all curricula for gifted students are locally built; quite probably, because of the very wide diversity of gifted students and their relatively small number, this state of affairs will continue indefinitely.

Effects of Administrative and Fiscal Arrangements

Some effects have been noted in the preceding sections. Others noticeable at various levels are:

1. The relatively few programs for the gifted in Canadian schools is surely attributable in large part to the lack of incentive growth over the last decade. Another factor is the absence of visible leadership at the provincial level.
2. Parental advocacy is only now beginning to emerge in Canada. There are a number of reasons. Schools in Canada are traditionally more isolated from parental input. The much lower incidence in Canada of lay members, that is, non-elected and non-professional persons, on school committees is both a cause and effect of this isolation. Parental expectations have not been as apparent in Canada because of the lower level of involvement of lay people in provincial government committees and at the local school system level.
3. Parental involvement in volunteer organizations is much lower in Canada. In Canada there has not been an equivalent need to lobby at the local level for general support for schools. Professional organizations in Canada have not welcomed lay membership nor been as ready to affiliate with lay groups.
4. Parental input in programs for gifted students, so necessary for viable programs, has been much less in Canada for the reasons mentioned above.
5. Inservice education, so vital in initiating and operating programs, is (as will appear later in this chapter) inadequate in both

countries. The development of stronger professional involvement, such as the California Association for the Gifted (CAG) and Talented and Gifted (TAG) in Oregon, or stronger efforts by local school systems as is happening in various places in Canada, is not likely to fill the need in either country. Further information is provided below in the section, "Essential Program Elements."

6. National leadership has not yet emerged. Of the four national organizations which currently exist, none appears to have the combination of professional, political and financial resources to adopt a leadership role. TAG Canada is not yet financially strong. The Canadian Teachers' Federation (CTF) depends on about 20 provincial professional organizations for its support and direction. Its emergence as the locus of leadership in educating the gifted would represent a marked departure from its usual role as well as a most unlikely consensus of agreement on purposes and levels of financial support. The Canadian Education Association (CEA), which has funded and published a Canadian survey of programs for the gifted, is unlikely to have the resources. The Conference of Ministers of Education, which has been a strong basis of information exchange and has had a powerful influence on trends in Canadian education, is not a public forum nor does it command resources which can be easily allocated to a national enterprise. There are no doubt other possible ways of establishing national leadership but further exploration is beyond the scope of this report.

National leadership in the United States is changing. The USOE's dismantling of its offices for education of the gifted has removed a very significant force. The Association of State Coordinators will no doubt fill some of the vacuum. The National/State Leadership Training Institute for Gifted and/or Talented will also no doubt continue a valuable service. There are no current indications of what else might emerge to fill the gap.

7. State leadership has existed for some time in all of the American states; leadership in the Canadian provinces is only now beginning to emerge. No doubt the national incentives in the United States account for much of the earlier development of state leadership.

In summary, the American effort has been sponsored by three levels of government, has started sooner, has more parental involvement and a longer history of leadership. It is of some interest to see what program elements are considered essential after a decade of operation.

Essential Program Elements. The survey by Gallagher et al. (1982) provides some information about essential program elements. Over 1200 respondents consisting of teachers (33%), administrators (26%), parents (13%), other professionals (14%) and those with multiple responsibilities (14%) were asked to indicate which of seven program components were essential. The results were:

1. Grants in aid to state or local schools 57%
2. Doctoral training 21%
3. Continuing inservice 76%

4.	Research and development	48%
5.	Demonstration programs	34%
6.	Technical assistance	28%
7.	State planning	41%

In the same survey, teachers indicated that inservice was the greatest need, parents wanted more programs, and administrators thought more money was needed.

The caution given earlier perhaps needs to be repeated. The differences between the countries makes the translation to Canada risky. But these data may, nonetheless, be some of the best guideposts available.

The major effort in education of gifted students in Canada over the next few years obviously must be the initiation and development of programs.

Origin of Programs

An impetus, a local advocate, a source of funding and a receptive and supportive administration seem to be the common combination of factors which result in a successful launching of a special program for gifted students. The first two factors, which are much alike in both the United States and Canada, will be considered first. Administrative and fiscal comparisons will be made.

Impetus

The impetus may be thought of as an acute situation or event, which demands immediate action. The examples which have been encountered in this survey include: a militant parent of a gifted child, a principal or school staff without the resources to deal with a gifted child, a teacher with a gifted child in the immediate or closely related family a school board member with a related gifted child, an actual or narrowly averted tragedy involving a gifted child, a substantial monetary bequest specifically designated for education of gifted students, availability of grants for initial planning and development of a program,or non-monetary encouragement from an official source such as a provincial or state department of education. The impetus may be thought of as a catalyst precipitating a reaction from other ingredients.

Advocate

An effective local advocate apparently is a necessity. In visits to systems and schools with programs developed during the last 4 to 5 years, not one was without a person who fitted this role. The advocate exhibits several characteristics, usually to a marked degree. The advocaate is informed about the need for special education for the gifted and about the limitations of school programs. He/she is energetic, vocal, persistent and cooperative with but unintimidated by either the political or executive administrative structure of the school. He/she is often well educated and may have been gifted but frustrated in his/her own school experience. He/she may be a trustee, parent of a gifted child, teacher, administrator, or other education

professional. In the sites visited, the most common advocate was a female professional educator in the middle stages of a professional career. Whether in Canada or the United States and whether the advocate is a trustee, parent or educator, the efforts of an advocate seem to be indispensible; in some instances the advocate becomes the catalyst as well. But, although an advocate and an impetus appear to be necessary, they are not sufficient to ensure a program; decisions, personnel, and material resources are also required.

Administrative Settings. Settings in which strong programs for gifted students develop appear to have an active synergetic relationship between the political and executive components of administration. It is more than a reciprocal openness, that is, openness of elected officials to suggestions from the electorate and from professional staff, on one hand, and the same kind of openness of professional administrators to suggestions from the elected administrative arm as well as from teachers. Elected board members actively explore the political implications of suggested changes and, where needed, help change the political attitudes of the electorate. Professional administration likewise explores and accommodates, as needed, the professional implications. There is a good relationship of intercommunication and room for adjustment to both political and professional realities. It is noteworthy that administrators have mentioned a board member with political realism coupled with an understanding of educational needs and implications at least as often as they have mentioned the vocal proponent. A school board plays a major, active, inter-relating role in initiating programs.

Initiatory Administrative Stages. Introducing a program requires taking a number of steps. These steps more or less include the following, in about the order given below. (In many cases a step is minimal and almost taken for granted.)

1. Preliminary assessment of such things as need, interest and attitudes is often done informally by board members or administrators. It has been assumed in some instances; in others it has been a study commissioned by the board and assigned to a committee consisting (in the United States) of board members, educators and lay persons.
2. Development of school district policy, including a definition, is sometimes done by the school board on recommendation of professional staff but more often by a committee similar in composition to the assessment committee. Formal approval of policy is always done by the board.
3. Establishing administrative structure is normally begun at about this stage but is completed and modified as the program is developed and evaluated. Typically the general responsibility for program development and supervision is assigned and an advisory committee established.
4. The operational definition is developed by the advisory committee, or more likely by a special committee with technical expertise, but it also, particularly in the United States, includes lay members. Having lay members is a device to ensure that community values are reflected in selection of the "gifted" population.

5. Identification processes are established. Even in this seemingly professional technical task it is not uncommon to have continuing lay input.
6. Teachers are selected and inservice, a major necessity, is provided.
7. Curricula and delivery programs are developed. Inservice and curricula development are the facets of gifted education requiring the most time and effort in the developmental stages and requiring the most extra effort from teachers. The ability to develop appropriate curricula is the major departure from regular preparation for teaching, and building curricula is the major difference in practice.
8. Evaluation procedures and requirements are established. This generalization is more often a hope than a reality because adequate pre-planning for evaluation is so frequently neglected both in Canada and the United States. The costs of appropriate evaluation, or impatience to get on with the program, or a belief that evaluation can be added later, or in some cases a belief that it is not important may be factors in this neglect. Not every program with a non-existent or inadequate evaluation program fails, but in most that do fail an inadequate evaluation component is a contributing cause.
9. The program is implemented on a pilot or a full scale basis. In large systems an initial pilot program is usual.

10. Evaluation is done and consequent adjustments to structure, identification processes, curricula and delivery systems, and evaluation procedures, are made. Despite the general lack of adequate evaluation procedures, some good evaluation practices do exist.

These 10 steps do not address another very significant factor. Although proponents may suggest that a program for gifted students can be developed and operated in isolation from, and independent of, regular school offerings, such, of course, is not the case. Programs necessarily interface in a number of ways, thus giving rise to problems but also providing some distinct advantages.

Interfaces

The main interfaces of programs for gifted students with regular programs relate to student selection, facilities, inservice, curriculum, evaluation and administration. Some of the most common problems and benefits mentioned in the course of the are noted below.

Student Selection. Teachers in regular classrooms sometimes complain about the best students being taken out of their classrooms. At other times, the complaint is that the student cannot afford to miss certain classes in which the student is not particularly gifted. On the other hand, teachers welcome having a new opportunity for gifted students, especially if they are underachieving or disruptive

Another advantage is that when regular classroom teachers are involved in student selection, as they usually are, they acquire a better understanding of the exceptional student.

Facilities. An advantage is provided to regular classes when special equipment for gifted programs such as computers become available for enrichment activities. But in starting the program the facilities must first be acquired.

Inservice. Some inservice education must be made available to classroom teachers if they assist in the selection process. In addition, teachers of gifted students serve as formal or informal consultants on teaching strategies and content. A common observation of school and system administrators is that the presence on campus of a program for gifted students also revitalizes education in regular classrooms.

Curriculum. Enrichment opportunities for regular classrooms are increased and some elements of the curriculum for gifted students is incorporated into the regular curriculum. A problem arises when regular classroom teachers must compact or otherwise adjust their curriculum for the gifted students who are taken out of their classrooms for part of the time, especially if the students seem to need that instruction.

Evaluation. Evaluation of the gifted student at any leve is a challenge fraught with danger and often avoided. Some nagging problems relating to evaluation of gifted students including those relating to admission to colleges and universities are reported in Chapter X.

Administration. Organizing to accomodate education for the gifted has many facets. In times when enrolment is decreasing extra classroom space is usually available, but at other times the need for extra space presents difficulties. Providing teachers who have appropriate preservice preparation and experience is a problem because such teachers are scarce. Also decreasing enrolments make hiring difficult when reductions in staff are being made. Staff relations are not always easy. Some teachers believe that nearly all children are gifted; others think no one should be singled out. At times the necessary consensus is hard to find. Expert assistance is not always available within the system. Student transfers are sometimes much more difficult if a student transfers to a school with no program or where the program is not suited to his needs.

These problems are only a sampling of the organizational challenges. A recent account of initiating a program, prepared as a background paper for this study by Judi Cherrington[1] of Victoria, B.C., gives particular attention to problems and concerns.

Planning Time

After visiting many districts the authors concluded that adequate preplanning and organization time before beginning programs for the gifted is extremely important. When one considers all of the elements which must be brought together to achieve success, haste is not usually

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[1] A copy of this paper is available on request from Planning and Research Branch, Alberta Education.

included in the list. Some elements of an appropriate plan include: district goal setting, organizational structure and physical arrangements, appointment of administrative personnel and then teacher selection, student identification criteria and process, and curriculum development. The above order, while not prescribed, could serve as a rough guide.

The amount of lead-time prior to the beginning of classroom instruction has varied. Most districts began planning two or three years in advance. The Calgary Public School District should be considered an exception having appointed their principal in January and opened their school for the gifted (Dr. Oakley Centre) in the fall of that year. However, one must realize that Calgary had been offering programs for the gifted for several years prior to the operation of their special school. Hopefully with more experience and documentation preplanning time can be reduced.

Chapter Summary

Experience in the United States provides an extensive and varied source of information about administrative practices and concerns in developing programs for gifted students. Incentives and leadership have been in place over a ten-year period and are just now entering a retrenchment stage due mainly to economics. However, differences between educational practices in Canada and the United States make importing techniques found viable in their experience a bit risky for us. Nonetheless, the basic elements found to be effective there are likely to be functional in Canada. These essential aspects are a combination of impetus,

advocacy, a special kind of administrative setting which includes a balanced and active partnership of the political and executive arms, a source of funds greater in the developmental stage than when patterns of operation have been established, and availability of suitable personnel. A general developmental pattern of 10 steps, which is a synthesis of a wide range of patterns encountered, is included for its suggestive value. A small sample of problems that districts can expect to encounter as well as some possible benefits serves as a reminder that initiating a new program always has new and often unforeseen challenges which always end up on the administrator's desk. Yet the benefits are seen as a consequence of a reasonable program which ought to have been initiated sooner.

Implications

1. In order to ensure continuance of education for the gifted there should be:
   a. development of short-term and long-term policies both provincially and locally that provide a dependable source of funds to begin and maintain programs. (Extra start-up money is necessary as an incentive for increasing the number of programs in the province.)
   b. adequate funding to encourage research in program and student evaluation.
   c. an investigation of ways to encourage basic and developmental research expansion.

d. encouragement for local districts to seek other sources of funding such as donations from foundations, local businesses and industries and interested individuals. (This might be accomplished through a matching grant system from the provincial government.)

e. an investigation to determine which federal or provincial government agencies and which private businesses engaged in public education might contribute toward special projects for the gifted.

2. Since administrative structures should support and complement the curriculum and delivery system, school districts should consider both the short-term and long-term organizational framework required.

3. Since in the United States program initiation, maintenance and quality were often a result of state education authority involvement, and since the lack of widespread success of programs in the Canadian provinces seems attributable to a deficiency in such support, Alberta Education should consider the organizational framework necessary to assist local districts in establishing and maintaining quality programs for the gifted.

4. Since programs in the United States seemed to thrive where parents and other lay personnel were involved at various levels of the organizational structure, a study of parental contribution to and involvement in programs for the gifted, in terms of the Alberta educational system, should be undertaken.

5. Since program success was often found to be dependent on the amount of forethought prior to implementation, adequate lead-time for planning, organizing, communicating to all stakeholder groups and inservicing should be built into each program proposal.

CHAPTER X

EVALUATION

So much has been written about evaluation in education, so many programs evaluated and so many students assessed that a chapter on evaluation gifted students and of the programs serving them may appear to be redundant. On the contrary, one of the first and most significant conclusions emerging from this survey, based on visits to programs in progress and on the literature, is that, by and large, evaluation is a crucial yet somewhat neglected area whose quality is in need of upgrading. The immense volume of literature and the large number of available reports fail to address adequately the particular needs of education for the gifted. These conclusions, reached independently, are very similar to those stated in a recent survey by Weiss and Gallagher (1982) for the Advisory Panel, U.S. Office of Gifted and Talented, Washington, B.C. This report states:

> The first conclusion that the reviewers reached in this volume is that there is a serious need for a systematic and organized effort to improve the design of program evaluation efforts in the schools, if such evaluation is to be considered a valuable tool for program decision making. (p. 3)

This chapter does not attempt to fill the void of information on evaluation of the gifted and/or programs for the gifted but only to explain why special needs exist, what kinds of things are being done in evaluation, what some research says about the value of providing programs for gifted students, implications for educators and some preliminary suggestions for organizing to meet some of the evaluation needs.

Special Attention Needed in Student and Program Evaluation

The following example of a particular problem in student evaluation and attempts to solve it illustrate that there are special difficulties. Defective instrumentation and inadequate research models are two of the reasons for these difficulties.

An Example

Many high schools endeavor to provide a differentiated curriculum for the gifted. Sometimes a special section of a course is designated where the content and assignments are designed to challenge the students. But how can the high school records fairly reflect the extra achievement levels of the gifted? This is more than a theoretical problem since the course description and number do not tell interested bodies, such as a university or hiring agency, about the special nature of the experience. Since the extra demands of the course may cause some students to do less well than if they had been in the regular section, a comparision with other sections is hardly fair. A group of gifted students may be compared to each other with the top student(s) receiving an 'A' grade and the bottom student(s) receiving a 'C' grade or less. Since these students have already proven their ability in comparison to the normal classroom, this grading may not accurately reflect ability in a normal population. But once again how does an outside agency viewing the transcript know of the peculiarities and special attempts by the school to make the curriculum challenging to the gifted? One might also question whether this is a problem of evaluation or reporting.

Solution One. One solution is to tag the courses, say with an "x", to signal their extra content. This only partly solves the problem because a post-secondary institution does not know and cannot know where to place such students on the regular grading scales. Is a "C" in an "X" course equivalent to an "A" in a regular course? This problem is acute when there is competition for admission to colleges with quotas or where scholarship decisions are involved, as is often the case.

Solution Two. The school makes the equivalence decisions and reports only in the regular manner. This is some improvement over solution one but not a complete answer because if curricula for the two groups are different in any significantly qualitative way, there is no set of achievement measures which can be designed to take the difference into account and fairly place both gifted and regular students on a single scale. In fact students intending to compete for a scarce college placement or a scholarship are electing regular programs over the more demanding (and presumably educationally better) programs for the gifted so as not to risk records likely to be misinterpreted in admission offices or scholarship committees.

Solution Three. Schools may work out a system with the university which allows the student in a particular section of a course to have advance placement in a university course. This type of acceleration is exemplified in the Study of Mathematically Precocious Youth project at Johns Hopkins University and in Scarborough High Schools for credit at the University of Toronto.

Once more this only partially addresses the problem. Students trying for scholarships are usually still not given adequate recognition under solution three. Students going to technical schools, special schools for the arts or seeking employment or placement in apprenticeship programs can hardly be given advance placement since equivalencies are not established.

Solution Four. Schools may allow students to accelerate their progress through the high school grades by taking extra credits in a semester. This allows the gifted student to graduate sooner than he/she would normally and therefore puts them into the job market or university at an earlier age.

This too often is the solution but once more it does not necessarily meet the special needs of the students. It emphasizes allowing the gifted into an environment where they may be emotionally and often physically underdeveloped and ill equipped to cope with the pressure exerted by society generally and by unknowing supervisors in particular. This solution does not allow for depth of inquiry and development of techniques while catering to the process of maturation over time.

Solution Five. Some magnet schools have tried to meet the special needs of students by providing both variety and depth in subject matter. Here all students select the courses they want to take and compete with everyone in the course. The gifted students and anyone else capable may accelerate by overloading but they are also encouraged to take courses

beyond the basic ones, stay in high school longer and receive special instruction and challenges commensurate with their needs. Any student may take courses, as long as he/she has the prerequisites. Some of the courses go far beyond the high school expectation and are recognized by colleges for advance placement. In some cases students are allowed to write the test for a college course and upon sucessful completion are given university credit even though the content was taken as independent study or as a high school offering.

While this solution also has disadvantages, an advantage is that students are challenged by being allowed to study an area in depth. While studying in depth students are given instruction by teachers who are familiar with their needs and in a setting which is less threatening. The high school can allow the student to participate in a variety of activities such as student government, publications and artistic productions while catering to special gifts and talents. All this is done while the maturing process takes its gradual course.

An Extension of Purposes

Most of the purposes for evaluating regular students and school programs apply just as well to programs for the gifted. Because of the relative recency and distinctive nature of programs for the gifted many of these purposes are extended or have a heightened urgency. Some new aims have also emerged.

Political reasons for evaluation become more urgent in any new program. (As the program matures evaluations become less frequent and reports are

slimmer.) In times of financial strain all programs come under closer scrutiny. But newness and fiscal strain explain only some of the current evaluation pressure from political sources on programs for gifted students.

Where no consensus exists about the need and the propriety of a school program, the pressure on evaluation is increased. Opinion is still mixed on the need for educating gifted students. Provisions for gifted children suffer from the opinions of a decreasing but still significant number of educators who believe the gifted will be allright without any special provision. Antagonism continues to exist toward what is often regarded as an elitist movement. These factors increase both the quantity of political decisions and the controversy surrounding them.

When new curriculum is developed, evaluation is appropriate. Curricula for gifted students are being extended in three ways: first, by student acceleration into advanced materials of higher grades; second, by enriching the curriculum to include more detail of what is studied; and, third, by going beyond the bounds of the regular curriculum to satisfy the gifted students' needs for "a qualitatively differentiated curriculum". Examples of the latter include: philosophy, the nature of the gifted child's own needs and futuristic studies.

Reassurance for parents, teachers, administrators and students is much more necessary in education for gifted students than in regular programs. Although gifted students are generally well adjusted, some, especially the extremely gifted, are very unsure of themselves. For a

few of these, reassurance is crucial; it may even become a matter of life or death. Administrators are at the interface with political structures but also at a key point in the professional configuration. This position generates need for reinforcement. Teachers of the gifted are more than ordinarily isolated from other teachers. Their needs for reassurance, which are partly met by evaluation, are extraordinary. Parents are usually aware of their child's being unusual, sometimes painfully so; their need for reassurance relates to the child's present progress and future opportunity. All of these unusual needs for reassurance place additional demands on evaluation.

More formative evaluation is required because of the complex nature of programs to meet the needs of gifted students. Efforts to individualize educational programs are a crucial part of education for special students, whether they are the gifted or the handicapped. Programs are adjusted while in progress on the basis of some kind of assesment; for the forseeable future an energetic program of formative evaluation appears to be an integral part of teaching gifted students.

The nature of giftedness places some additional emphasis on evaluation. In the identification of giftedness some assessment is called for (see Chapter V) but educators working with gifted students need much more information about the students than the identification procedures usually provide. This information is important in planning viable individual student programs. It is also necessary for professional comfort, if not survival; teachers must understand the potential of each individual student.

These factors indicate increased needs for on evaluation for the usual purposes and also for some unusual ones. Unfortunately, however, instruments are found to be inadequate, and evaluation strategies are limited in their usefulness.

Instrumental Deficiencies

The best available instruments for evaluation of gifted students are in the academic component of giftedness, but even in this area they are weak. Weiss and Gallagher (1982) state:

> The available test instruments are weakest precisely in those program areas where gifted education places its major emphasis: the stimulation of higher thought processes and in the mastery of abstract concepts in content fields. Most achievement tests are designed to provide broad information coverage rather than depth of understanding, and are constructed so that the average student will be able to perform on them. This provides little opportunity to test the highest performance of students. It merely documents knowledge mastery at a generally low level of abstraction. (pp. 2-3)

The validity of tests used with gifted students is questionable. Scores bunch near the top, showing a need for test items that will spread the test - takers. Educators tend to notice the lack of ceiling and neglect the far more important question of validity.

Every standardized test worthy of consideration is based on sampling a "curriculum" with appropriately constructed test items. The basic assumption which is always made in using standardized tests, and which is so often tragically unwarranted, is that the test curriculum

adequately fits the actual curriculum presented to the student. In the case of a "qualitatively different" curriculum, which is a major objective in education for the gifted, the probability of a massive misfit approaches 100 percent!

For the gifted, standardized test items often appear ambiguous and the "right" answers turn out to be "wrong" answers, or not the "best" answers. This phenomenon occurs because test-makers cater to the average, but the greater knowledge or thinking ability of the gifted allows these students to pick out errors which are not readily obvious but still make the item inaccurate. In a number of instances gifted students have been known to rebel against the trivial nature of some test items. It is apparent that these students are often more sophisticated than the test author(s).

These considerations force the conclusion that standardized tests have serious weaknesses in measuring skills and knowledge of gifted students and where the curriculum is significantly differentiated they are invalid. Furthermore, if the curriculum includes development of divergent thinking (one definition of creativity), the tests having one "right" answer are inappropriate. Most standardized tests are of this kind.

There are tests of creativity. Most of them test the so-called divergent thinking skills of fluency, originality, elaboration and creative problem solving. These are important skills which can be developed through education. But the tests are criticized, not only because they may not

measure higher levels of creative thought but also because of basic differences of informed opinion about the nature of creativity. Weight of opinion holds that creativity is definitely more than divergent thinking. It also involves the extended cognitive abilities spectrum as well as personality attributes. Clark (1979), for example, includes in creativity all of the intellect-related human abilities including sensing and intuiting. Needless to say the instrumentation suffers from validity - again precisely in the higher and more inclusive levels of creative efforts -- because educators are not sure what is to be measured.

Despite divergent views about the nature of creativity, there is an almost ubiquitous conviction that creativity, however conceived, is an essential component of giftedness. In this survey there was no instance where creativity was not at least given lip service, and in most programs it was officially if not always actually included in the program. But the diversity of opinion has militated against development of good instruments. Clark (1979, pp. 244 ff.) and Weiss and Gallagher (1982, pp. 10-12) provide informative summaries of relevant research.

Useful devices for eavaluating leadership are mainly judgmental in nature: a parent questionnaire, peer nomination and some rating scales have been used to discover indications of leadership potential. In this survey no instruments were reported to be commonly used; this result was no doubt a consequence of the fact that almost no programs encountered had a significant leadership component.

Psychomotor ability has in practice been equated with athletic activities and its development left to both amateur and profession alathletic and sports organizations in the school and outside of it. The measures of and checklists for athletics are widely known. But limiting the field to athletics omits such other potentially gifted individuals as artists, sculptors, performing musicians, surgeons and architects. Instruments for measuring the relevant sensory-neural-psychomotor skills are largely unknown. Evaluation relies on products.

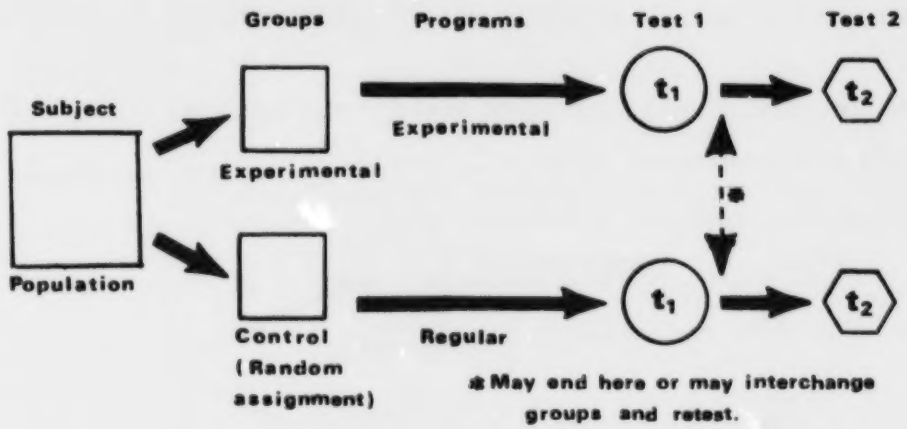
Educators who are discomfitted by the lack of suitable instruments for student evaluations will be further distressed by the limitations of models for evaluating programs for the gifted.

Inadequate Models

It is admittedly difficult to demonstrate the usefulness of many education programs. Programs for gifted students are no exception to this rule; infact, for the most part the difficulties are considerably increased. Reference to some commonly used evaluation models will help to explain why.

Traditional Research Model: Random Design.

Figure 10.1 *



Limitations:

1. Programs appropriate to gifted students invariably call for curricula which are qualitatively different from and represent a considerable extension of the regular curriculum. This renders it impossible to construct a single test instrument which is fair to both groups. Hence, comparisons are meaningless at best and may be very misleading or even damaging.
2. Parental expectation and political realities, not to mention individual student rights, make it very unlikely that gifted students can be randomly assigned to the two groups.
3. Even in a group of gifted students, the variability from student to student in kinds of gifts makes it unlikely that a test instrument can be devised which will lead to meaningful comparison between two experimental programs, with each group being the control for the other.

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*The interchange of programs and the retest are frequently omitted in the traditional research design.

4. Another complicating factor in using this design is the almost universal agreement among educators that at least some part of the students' curriculum ought to be individualized.

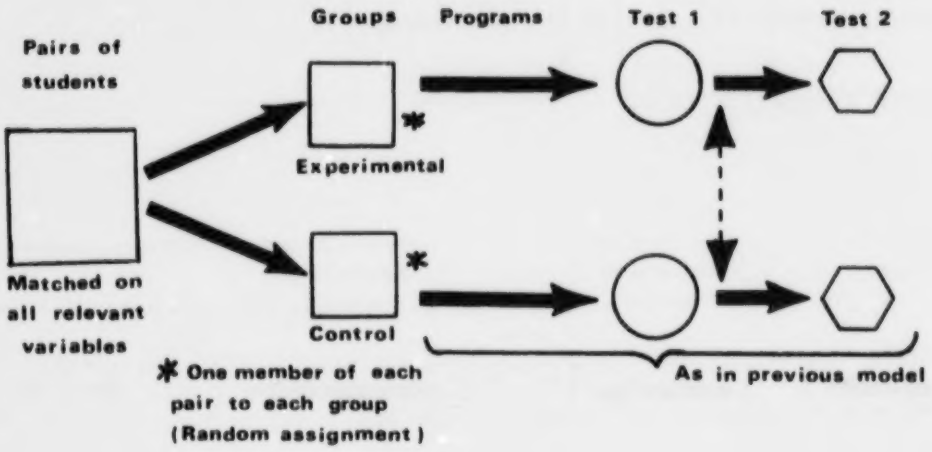
Traditional Research Model: Comparison Design. This model is similar in design to the preceding model except that instead of random assignment to two groups, a comparable control group is found in the regular classroom setting. Millar (1979) provides an example of this model's application to program evaluation in Alberta.

Limitations:

1. There would be considerable difficulty in finding a control group with the same abilities, operating as a group rather than as scattered elements of a number of regular programs.
2. Even if such a group could be found, the same limitations would apply as for the random model.

Traditional Research Model: Paired Associates I

Figure 10.2 *



Limitations:

1. All of the limitations listed with the previous models also apply to this model.
2. Matching on all relevant variables would require much more information about students than we currently accumulate. Some of the information would no doubt be subjective and hence difficult to process. Matching would be a very tedious process requiring computer assistance.
3. A large pool of students would be required to yield a reasonable number of matched pairs.

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*Assignment of one member of a pair to the experimental and the other to the control group is by chance.

Traditional Research Model: Paired Associates II Another related model is one in which an attempt is made to find a match in regular classes for each of the students in the experimental program. The limitations of this model are no less than in the preceding one.

Goal-Based Evaluation Model

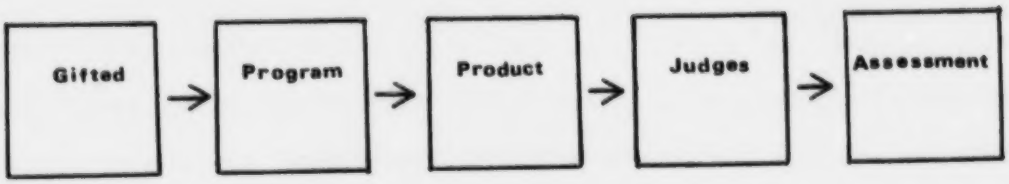
Figure 10.3

Limitations:

1. Are the objectives worthwhile? Since this is not a comparison model, the value of goals set and/or achieved is judgment and, of course, subjective.
2. It cannot be securely known whether the objectives reached in the gifted program might not also have been achieved in the regular program.
3. Side effects, either desirable or otherwise, may not always be apparent.

Product-Based Evaluation Model

Figure 10.4



Limitations:

1. Implied in this model is a basic judgment problem with two dimensions. The first is whether and to what degree the product is relevant to the goals and objectives of the program for the particular student. The second is about how valuable the product is and the degree of excellence exhibited.
2. Selecting appropriate judges both willing and capable of making the assessment poses problems, especially if the product lies outside the realm of teacher expertise, as is often the case.
3. As in the preceding model, this one also leaves open the question of the relative merits of alternative programs.

These six models do not exhaust the possibilities; there are some relatively recent models more specifically related to education for gifted students, but they also have limitations. Renzulli (1975) describes five models: (1) Stake's Countenance model (1967), (2) Stufflebeam's Content Evaluation, Input Evaluation, Process

Evaluation, and Product Evaluation (CIPP) Model (1971), (3) Provus' Discrepancy Model (1969), (4) Eash's Differential Evaluation Model (1971), and (5) Renzulli and Ward's Diagnostic and Evaluative Scales for Differential Education for the Gifted (DESDEG) Model (1969).

Renzulli describes these five models as "theoretical or heuristic" and warns that as such they are ways of thinking about evaluation rather than a workbook formula. "A would-be evaluator could easily drown in a sea of complexity if he selected a single model and slavishly tried to stick to it" (p. 17). Renzuilli issues a reinforcing caveat, "...we should again re-emphasize that no single model or approach is sufficient for solving all of the problems that are likely to occur. . ." (p. 46).

Renzulli identified three kinds of information useful in the evaluation of programs. Process information is what goes on in the program, including such things as teacher and student behaviours. Product data includes results of tests, student papers or projects and the like. Presage data focus on factors which are known, or are assumed on the basis of experience, to have an effect. For example, expert teachers and a limited class size are put into the educational design with the expectation they will have desirable effects. These three kinds of data serve both of the two widely recognized kinds of evaluation, formative and summative.

Data useful in both kinds of evaluation are often obtained from standardized tests. The problems with use of such tests have already been discussed but some of the alternative sources should be noted. Rating

scales, biographical profiles, mastery lists, surveys, judgmental entries and counts of a variety of relevant items are only a few of them.

Despite the problems, evaluation of both and students and program does take place in many programs, often as a consequence of federal, state/provincial or local requirements for continuation of fiscal support. According to Weiss and Gallagher (1982), this circumstance, although an incentive, may be a factor adversely affecting the quality of education.

> Many school program evaluation efforts are mandated by outside agencies and often carried out by school personnel with limited background and experience in evaluation design. Consequently, many of the issues . . . plus standard evaluation design problems, are often overlooked. (p. 3)

In times of recession, time and money required for developing and conducting an evaluation in this relatively new program area are additional adverse factors. Some programs do not lend themselves to study, often because the evaluation design component is an add-on effort after the program is well under way. In consequence of these adverse factors, Weiss and Gallagher (1982) have concluded that research must be conducted in the following areas:

1. Evaluation to determine significant content. What content is of sufficient value to occupy the prime places in gifted programs? And is this content being mastered by students in the program? The real question is, "What is appropriate curriculum?"
2. Evaluation to determine whether students master the advanced concepts of gifted programs.

3. The evaluation of whether products as the outcomes of programs for gifted students are suitable indications of student achievement.

Some Current Evaluation Procedures

Most of what is being done about student and program evaluation appears to be directed toward two purposes: 1) reporting to parents on student progress and 2) reporting to school boards or other funding agencies. During the developmental stages of programs, it is not unusual for formative evaluation reports to suggest changes that would enhance the program. Unfortunately, well established programs seem to lack adequate evaluation components, and even student evaluation becomes less well defined. It seems that program establishment is a sufficient evaluation mechanism and the incentive to evaluate for improvement or to measure progress against objectives is deficient. While most funding agencies require an evaluation component, once the program is in place, evaluation focuses mainly on student progress.

Student Evaluation

There are usually two facets of student evaluation for the gifted: since most students must complete the rudiments of the normal curriculum, they are evaluated on their achievement in this area, and they are also evaluated on progress made in the differentiated curriculum for the gifted. School districts often use the normal reporting system for the former and develop a few extra criteria for the latter. Sometimes a composite form is developed to cover both facets of the gifted program.

Anecdotal records, either in a written form or orally presented to parents, are the most common reporting method used for the gifted. The smaller number of students involved and the generally high interest of parents have been cited as factors favoring this model. Also, reports can be more relevant to the individualized programs and achievements. The data on which the verbal reports are based is presumably teacher observation of the skills and knowledge gained and the quality of student products. Although this method of reporting to parents is a favored and may well be the best, it does not provide a record of achievement. In the first seven or eight grade levels this method seems quite acceptable, but in the high school a major problem exists.

Some programs have special reporting forms. The Vancouver(B.C.) school board (Haslim, circa 1978) suggests a reporting form in its resource manual. It is a simple 22-item, 5-point rating scale for use by teachers to estimat student growth. The items sample 8 areas of growth:

1. Understanding of self: realistic estimate of strengths and weaknesses; sense of self-worth; self-acceptance.

2. Love of learning: too much value on grades; a "need to know" drive; values learning for its own sake.

3. Social conscience: shows regard for less able, younger or different children; treats all others with respect; sensitive to needs and feelings of others.

4. Tolerance for ambiguity: comfortable with open-endedness; willing to make up his/her own mind; will consider more than one "solution".

5. Creative thinking: exhibits originality and imagination.

6. Quantity and quality of production: volume of intellectual productivity output; quality of output.

7. Response to challenge: eager to try the difficult tasks; perseverance.

8. Use of teacher: responds to teacher expectation; feels free to express his own opinion in the teacher-pupil relationship; uses teacher as a sounding board; seeks to use teacher for individual inquiry or discussion.

Data gathering instruments are seldom suggested in the resource manuals. Use of creativity and achievement tests depend on the specific nature of the curriculum. Measurement instruments constructed to fit the objectives of the curriculum for the gifted are seldom encountered.

In Cupertino, an urban community at the south end of San Francisco Bay in California's "silicone valley", a special class of underachieving gifted students was planned, developed, conducted and evaluated by Joanne Gamble Whitmore (1972). The evaluation methodology is of interest. The data gathered were classified under three headings: Subjective, objective and case studies of a sample of students for the purposes of subsequent research. Subjective data included a pupil self report, teacher anecdotal and progress reports, and parent evaluation. Objective data were the results of Stanford Achievement Tests (reading), California Achievement Tests (reading, math, spelling), Durrell Tests (reading, phonetic spelling), district tests (math fundamentals), Thematic Apperception Test (modification of the California Personality Test), a specially designed sentence completion test (personality) and a sociometric test.

Several measures of student achievement and attitudes served as the primary measures of program effectiveness. The Sears Self-Concept Inventory and Thinking About My School, the latter developed by Whitmore (1972), were used for student self report. Teachers completed A Behavioral Rating Form - T (also developed by Whitmore) and parents completed a shortened version, Form-P, of the same instrument.

Evaluation of students in the district's Extended Learning Program (ELP) is much simpler and a matter of school prerogative. In most cases it consists of a parent-school communication program which includes four program newsletters (per year, open-house activities for parents to visit, conferences with the regular classroom teacher, district advisory committee meetings and a program handbook. Each ELP student must have a yearly individual educational plan (IEP) approved by ELP district office staff, which is available to parents for review. The most common sources of data for student evaluation were reported to be teacher observation and a checklist of objectives achieved. While both the Under-Achieving Gifted study and the ELP provide opportunity for parental input to student and program evaluation, the study formalized the parental feedback.

Program Evaluation

Student evaluation procedures tend to be much more elaborate than the program evaluation process. It seems that program evaluation is based more on a survey of attitudes than on achievement of objectives. The

sophistication of program evaluation seems to depend considerably on the experience of the evaluator.

One example of a program evaluation is one conducted annually by the Vancouver, Washington school district. Student learning is evaluated through locally developed and normed measures of higher cognitive skills and creativity, using both verbal and non-verbal test items. The tests are administered in the spring so as to serve as a pretest for the upcoming year and as a post-test for the year nearly completed. The gifted must display both high cognitive ability and high creative ability. This allows control groups who are one of either "high cognitive" or "high creative" to be selected for comparison purposes.

In addition to the tests administered annually, teachers of the gifted provide feedback in the form of a rating scale (Schuman, 1979, p. 34) designed to show skill level and skill growth in 10 items under four categories: 1) Cognitive Skills: use made of intellectual potential, use made of creative potential, integration of divergent ideas; 2) Work Skills: initiative, follow-through, quality of product, attendance; 3) Affective Skills: likeability, sensitivity to others; 4) Global Assessment: progress and status overall.

Students were also asked to provide feedback. The results (p. 168) showed that 83% of students liked the program, 75% felt challenged, 87% thought the class was good or excellent, 86% had little or no trouble completing their assignments, 86% had adequate communication with their teacher. In addition, they reported favorable changes in their behaviour as compared with the previous year.

Parents provided information about their children indicating that nearly half of the students (48%) were enthusiastic and another 42% had a positive attitude. The report also showed that 94% of the students found the program "somewhat" (70%) or "very" (24%) challenging; 55% expressed pleasure over the program "very often" and 39% "sometimes"; 85% thought the program was meeting the students' needs "adequately to very well" and 92% rated the program "adequate to excellent". Parents thought the program should take about 3 hours per week (median). Of a list of 17 items, parents thought their students were doing more than in the previous yearon 14 of them. Items included: gets along better, reads more deeply, thinks up more new and different things and, understands cause effect better.

The evaluation programs in the Cupertino study and in Vancouver Washington are exceptional rather than typical. They do, however, serve to illustrate the kinds of evaluation devices being employed. Good evaluation programs, which are the exception rather than the rule, take time and effort by experienced people who are very knowledgeable about both evaluation and education for gifted students.

The design, selection (or construction) of instruments and administration of an evaluation are much too complex for further treatment in this report. The publications by Clark (1979) and Renzulli (1975) contain information about instruments and other facets of evaluation which will be of use to administrators and others in program

planning. A short monograph published by the Alberta Teachers' Association (Sillito, 1980) will be useful to teachers using standardized achievement tests.

Are Programs for Gifted Students Worthwhile?

All of the answers about the value of programs for gifted students are not in as yet; but the programs continue to proliferate world wide. So in a pragmatic sense at least some answers are at hand.

Weiss and Gallagher (1982) Survey

An example of the best and most recent information available is the Weiss and Gallagher (1982) study. The 14-point summary of that report is relevant.

1. The data collected on program evaluations for gifted programs suffers from a lack of attention to evaluation design and lack of trained evaluation personnel. More and better studies need doing before confidence can be placed in these results.

2. Past reviews of evidence of effectiveness in programs conducted in the mid-1960s suggest that these design issues were also present earlier. The earlier work suggested that grouping by ability and acceleration seemed to be helpful to gifted students, and that attempts to train them in specific thinking skills worked well, although the evidence of the transfer of those skills to other academic tasks was lacking.

3. The main areas reviewed were programs focusing on improvement of thinking skills, modified content, and adapted learning environments through the use of strategies such as resource rooms, advanced classes, teacher/consultant, and special schools.

4. Current studies on the training of creativity or productive thinking skills suggests that specific improvements can be made in such dimensions as

fluency, flexibility, originality, etc., under a program of systematic training. There remains a lack of evidence on the transfer of such specific skills to other academic assignments.

5. The subjective testimony of students, parents, and teachers present a positive feeling about independent study programs and programs to improve leadership skills.

6. Advanced placement courses that yield college credit in the content enrichment area in secondary schools have demonstrated clear cost-benefit advantages. A specific study of ten southern states yielded savings in college costs of nineteen million dollars over a one-year period of time.

7. Talent searches, such as the Study of Mathematically Precocious Youth, have been rapidly expanding and possess the potential for providing advanced content for talented and highly motivated students. Data is provided to show that students can master higher level material in math with less time spent on the process. No evidence of harm to the students thus accelerated is available, and the possibility for gains seems real.

8. A few programs stress preschool or primary school readiness, teaching of thinking skills, and social responsibilities as part of the curriculum. They report both academic and affective gains.

9. Special learning environments such as private schools, focusing on gifted children, display descriptive data showing no major harm or losses that come to students in their program. There is some evidence that distinctive educational environments may result in attitude changes in gifted students, but little precise understanding of dynamics is available.

10. A review of the specific acceleration technique of grade skipping reveals, as expected, some social adjustment problems developing in some students. Other techniques of acceleration, such as advanced placement, seemed more acceptable to the schools.

11. Teachers can be effectively trained in models of thinking process, such as "Guilford's Structure of Intellect" and "Bloom's Taxonomy." Teachers can

present the concepts and knowledge in these models to the gifted student.

12. The teachers were consistently identified as a crucial factor with the availability of inservice training and support services seen as important for a successful program.

13. The authors believe that there should be much more work done on the design of significant curriculum content for the gifted and the development of task analysis of skills such as independent study in order to better assess student entry and exit levels, to demonstrate useful products as possible outcome measures, to demonstrate the generalization of learned skills, and to have more attention paid to basic research and evaluation design.

14. The area of gifted education remains a fertile and largely unexplored field in need of consistent formative evaluation.

Other Indicators of Program Value

From the survey conducted as a basis for this report and from the review of the literature, additional evidence has emerged indicating broad support for developing special curricula for the gifted.

1. Substantial programs exist in many countries; some of the most ambitious programs exist in developing countries. While universality does not guarantee worth, it does indicate that a large number of decisions have been reached, world-wide, to invest money in educating gifted students. In some cases the impression is gained that the investment is in the interest of international competition.

2. Programs persist. Those which began 20 or even 30 years ago are still in operation having been modified to fit

newer concepts. While it is too early to report the effects of the current recession, relatively few programs at the local district level are expected to be discontinued in the United States and Canada. Coordinators expect there will be modifications due to budget restrictions but major cuts are unlikely.

3. Evaluations of the programs visited, though largely subjective, range from positive to enthusiastic. This generalization seems to apply whether the evaluation is by teachers, students or parents.

4. School system administrators, program directors and teachers report that some common problems are alleviated. Student disaffection is reduced, at least in some settings. Enrichment of the regular curriculum is often improved. Gifted students are both reassured about their own capacities and more often challenged to use them. Inservice education of teachers has an added dimension for both regular staff members and teachers of gifted students; classroom performance is revitalized. Parental involvement is increased.

5. While the role of the school in the matter, is not yet clear, it is possible to hypothesize that appropriate education for the gifted may reduce the tendency for self-destruction. The Terman Study (as reported in Suicide and Life-Threatening Behaviors, 1981), showed

that ". . . intellectually gifted children - far from being, as was once thought, spindly, weak and maladjusted or one-sided--are on the whole more physically and mentally healthy and successful than their less-than-gifted counterparts." While the mortality rate generally for the Terman group was lower than expected when compared with the normal population, the suicide rate of the total group was considerably higher, being at the 17% level by 1960. (The first suicide occurred at 18 years of age and the last at 44 years of age by the year 1960.) There have been postulations in recent years that our school process does not provide sufficient challenge to the gifted and that this same problem exists throughout society generally. We do know that the schools are often frustrated when it comes to meeting the challenges of educating the gifted using the standard curriculum. It remains to be discovered whether schools can make a difference in the area of self-destruction.

Chapter Summary

In any program for the gifted, both program and student evaluation are crucial. Current fiscal strain requires that programs, especially new ones, be justified to school boards, funding agencies and community members. Evaluation during the early stages of a new

program is especially important to insure that programs are achieving their stated objectives. Effective student evaluation provides much-needed reassurance for parents, teachers, administrators and students and gives necessary information to teachers who must accommodate individual differences.

Despite the many good reasons for systematic and organized evaluation efforts, evaluation is often somewhat neglected. Instruments for student evaluation are frequently defective, and models for evaluating programs are inadequate. For example, program evaluators find it difficult to compare progress of students in regular programs with that of students in programs for the gifted, since the latter are studying a qualitatively different curriculum.

In current practice, student evaluation tends to be more elaborate than program evaluation. Probably for lack of a better method, program evaluation tends to be a survey of attitudes rather than measurement of the achievement of objectives.

Although it has been difficult to objectively show that special programs for the gifted are effective, there is broad general support for such programs in many countries. Some programs have now persisted for 20 to 30 years, and response to them has been positive and even enthusiastic.

Special programs have tended to alleviate many problems commonly associated with the gifted; it has even been postulated that such programs may reduce the suicide rate.

Implications

1. Student evaluation seemed to be an area needing more intestigation and standardization. Therefore:
   a. Longitudinal studies of student academic achievement extending into career achievement should be undertaken to determine whether programs for the gifted have an adequate payoff.
   b. There is need of constant evaluation procedures combined with an exchange of information among program coordinators. Each project needs to have an assessment of how student evaluation affects the program and its participants.
2. Since program evaluation was often weak and in some instances non-existent:
   a. evaluation should be built into every conceived project, not only in its developmental stages but in periodic reviews after it has been established.
   b. resource personnel should be available to assist with program evaluation and report dissemination.
   c. school districts should work together to suggest strategies and evaluation designs appropriate for program assessment of the gifted.

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APPENDIX

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